

Neys Provincial Park

Master Plan

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Ministry of
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Neys Provincial Park

Master Plan



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Office of the
Minister

Ministry of
Natural
Resources

416/965-1301

Whitney Block
Queen's Park
Toronto Ontario

MINISTER'S APPROVAL STATEMENT

Located on the rugged northern shoreline of Lake Superior, Neys Provincial Park incorporates the entire Coldwell Peninsula. The park offers an outstanding opportunity for a variety of recreational activities in a natural setting which is accentuated by the cultural heritage of the area.

Existing development, located on the periphery of the park, provides car-camping and day-use recreational facilities for travellers on the Lake Superior Highway 17 route. Recognizing the natural integrity and environmental sensitivity of the peninsula, the master plan does not propose any additional major development.

In this regard, a wilderness zone, encompassing the whole of the Coldwell Peninsula, will dominate the park. The zone will ensure the protection of significant natural resources associated with a truly spectacular segment of the Lake Superior shoreline. It provides for a carefully designed system of hiking trails in conjunction with strategically placed walk-in interior campsites. The present high quality interpretive program will be expanded to effectively communicate the significance of the park's resources to the visitors.

As approved in accordance with The Provincial Parks Act, Section 1d and 7a, the Neys Provincial Park Master Plan provides the official policy for the preservation, future development and management of Neys Provincial Park.

Frank S. Miller
Minister

October, 1977

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Appendix

Metric Measures

<u>Unit</u>	<u>Equivalent</u>
centimetre (cm)	0.3937 inches
metre (m)	3.2808 feet
kilometre (km)	0.6214 miles
square kilometre (sq km)	0.3861 square miles; 100 ha
hectare (ha)	2.4710 acres
cubic metre (cu m)	35.3148 cubic feet
litre (l)	0.2200 gallons
kilogram (kg)	2.2046 pounds
kilowatt (kw)	1.3410 horsepower
degrees celsius ($^{\circ}$ C)	$^{\circ}$ C $\times \frac{9}{5} + 32 =$ degrees Fahrenheit ($^{\circ}$ F)

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Master Plan Highlights

Neys Provincial Park will be classified and managed as a natural environment park in accordance with the Ontario Provincial Parks Classification System.

The following zone designations will be employed to meet both the preservation and recreation objectives of the park: wilderness, nature reserve and development.

The park's evolving visitor services program will be further upgraded, and its presentation will be enhanced through the development of a central visitor services centre and on-site facilities.

The interpretive component of the park's visitor services program will emphasize Neys as an outstanding example of the rugged beauty of Lake Superior's north shore.

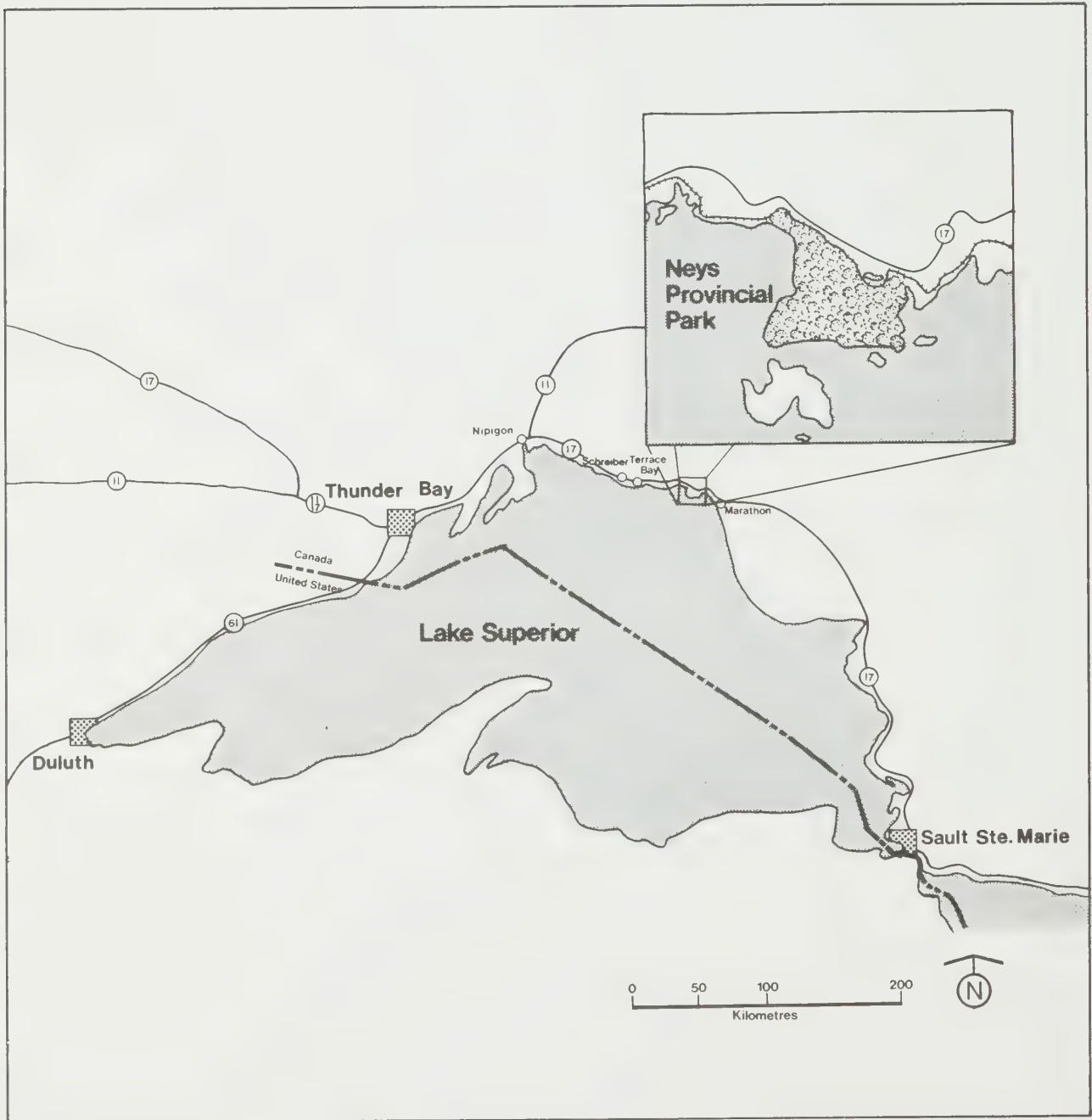
The existing recreational opportunities will not be significantly expanded as a result of site constraints and the development of alternative opportunities in neighbouring parks.

A primitive trails system will be developed within the Coldwell Peninsula to provide a quality interior experience based on opportunities for hiking, camping, viewing, photography and nature study.

In accordance with Ministry policy, this master plan will be reviewed every five years and will be completed as funds and priorities permit.

Figure 1

Location



Introduction

Neys, a 3,260-ha provincial park established in 1965, preserves a remote and truly spectacular segment of Lake Superior's northern shoreline (Figure 1). Neys Provincial Park incorporates the whole of the Coldwell Peninsula, a popular subject for Canada's famous artists, the Group of Seven. Thrusting southward into the lake, the peninsula creates a dramatic union of the mountainous topography of the north shore and the waters of the world's largest freshwater lake. The wild and rugged Coldwell Peninsula offers outstanding potential for such extensive recreational activities as hiking, viewing and natural environment interpretation; yet, because of these characteristics, traditionally the peninsula has experienced only limited use. By contrast, the less dramatic topography of the park's northwestern corner has served as a base for such moderately intensive forms of outdoor recreation as camping, picnicking and beach activities.

Although quality access is provided by the Trans Canada Highway (Highway 17), recent user statistics indicate a low incidence of both local and destination use, largely accounted for by the park's distance from major population centres; Thunder Bay is situated 290 km to the west, while Sault Ste. Marie is 415 km to the east. Nearby towns are small and include Schreiber and Terrace Bay, 80 km and 65 km to the west, respectively, and Marathon, 25 km to the east.

In contrast to its limited use by local residents, the park serves as an important component of the regional parks system. Predominant users of the park are campers travelling Highway 17. Tourists visiting the region to enjoy the scenic quality of Lake Superior's north shore find Neys Provincial Park to be an attractive stopover or secondary destination on their journey around the popular Lake Superior Circle Route.

Biophysical Resources

Climate

Neys Provincial Park is situated within the Superior Climatic Region (Chapman and Thomas, 1968). The climate of this region, which is relatively moderate in the context of the climate of Northern Ontario (classified as modified continental with cold winters and short, warm summers), is modified by Hudson Bay and Lake Superior. The park's proximity to the lake results in cooler summers, milder winters and generally higher incidences of wind and moisture than are characteristic of the inland areas of the Superior Climatic Region.

The overall mean daily temperatures of the park are 1-2°C warmer than the norm for this latitude. The mean daily temperatures for January (-20°C) and July (15°C) are three degrees warmer and two degrees cooler, respectively, than the corresponding latitudinal norms. As a result, Neys experiences one of the longest frostfree periods (May 6-September 15) in Northern Ontario.

The park has one of the highest summer rainfalls (approximately 40 cm) in Ontario as well as a high incidence of dense summer fog. On the average, rainfall occurs 16 days out of every summer month. Most rains are light, seldom dropping more than 0.5 cm, although there are generally two or three storms each month which drop over 1.25 cm and one storm which drops over 2.5 cm. The average annual winter snowfall of 200 cm is also well above the provincial average.

Because of its varied topography and the moderating effect of Lake Superior, the park possesses a variety of micro-climates. Onshore winds suppress summer temperatures in the immediate vicinity of the shoreline making them substantially lower than those of nearby inland areas. The exposed windswept peaks of the park interior are also cool and often inhospitable in fall and winter. Areas of exposed bedrock and dune formations, where buffered from winds blowing off the lake, tend to be warm and dry.

Geology

Neys Provincial Park lies within the vast Precambrian Shield, a complex of ancient sedimentary, igneous and metamorphic rocks that extends from the far arctic to south of the Great Lakes. The Shield is divided into a number of provinces and sub-provinces on the basis of overall differences in internal structural trends and style of folding (Stockwell et al, 1970). Neys Provincial Park is situated in the southern portion of the Superior Structural Province and lies within an Archean metavolcanic-metasedimentary belt which has been

intruded by a Late Precambrian intrusion known as the Port Coldwell Alkalic Complex. The high relief in the area may be attributed to rapid post-glacial uplift and older (i.e. pre-Quaternary) downfaulting associated with the formation of the Lake Superior basin (Puskas, 1967). Glacial deepening of existing valleys also shaped the landscape. Neys Provincial Park is an outstanding example of the rugged landscape common to this portion of the north shore of Lake Superior (Figure 2).

In the park area, the older Archean-aged rocks are volcanic in origin, consisting of metamorphosed mafic to intermediate lavas. The local mafic lavas exhibit pillow structures in varying degrees of development indicating that they were deposited in an aqueous environment. These rocks form the "host" or country rock into which the later igneous material (Port Coldwell Complex) was intruded. A band of diabase-textured mafic lava is exposed in the western and southern areas of Neys Provincial Park and forms the Coubran Lake Roof Pendant, a remnant of host rock that has undergone various metamorphic or assimilative phenomena related to the emplacement of the underlying Port Coldwell Alkalic Complex (Puskas, 1967). The Archean metavolcanic rocks exhibit gentle relief and smooth topographic form, a sharp contrast to the abrupt and spectacular relief of the Port Coldwell Complex outcrop areas.

The rocks of the Port Coldwell Alkalic Complex were intruded into the Archean rocks about 1,050 million years ago (Watkinson et al, 1973). The Complex is a funnel-like, layered intrusion emplaced by a process of magma stopping and assimilation (Puskas, 1967). A partial ring structure is evident in the Port Coldwell Complex by the occurrence of both concentric and radial lineaments, of which the Little Pic River valley and the Killala Road valley are major examples (Billings, 1974). The rocks are considered to be members of two series, namely, a "main" series and a "secondary" series (Puskas, 1967). The rocks of the main series include gabbros and laurvikites. The gabbros are conformably overlain by laurvikite, a unit which is approximately 3,700 m thick (Puskas, 1967). The laurvikite is exposed in the northern portion of the park (Figure 3). The rocks of the secondary series include a medium-grained red hornblende syenite (syenodirite), a red quartz syenite (nordmarkite) and nepheline syenite. They are exposed in the southern portions of the park where they intrude into the host rock, the Coubran Lake Roof Pendant. The nepheline syenites form topographically high areas in the park. Intrusive alkaline bodies are not common in Ontario and are noted for unusual and often valuable mineral assemblages.

Thin residual soils mantle the areas of bedrock. They are derived from recent weathering processes and are usually located in natural hollows in the smoothed rock surface. Bog development occurs where water is contained within bedrock hollows. Thicker mineral soils tend to be associated with materials of glacio-fluvial origin. These are typically valley-side soils developed on a regolith of unsorted tills or sands and gravels which may cover less steep slopes. Such soils often display consistent downslope creep (Billings, 1974).

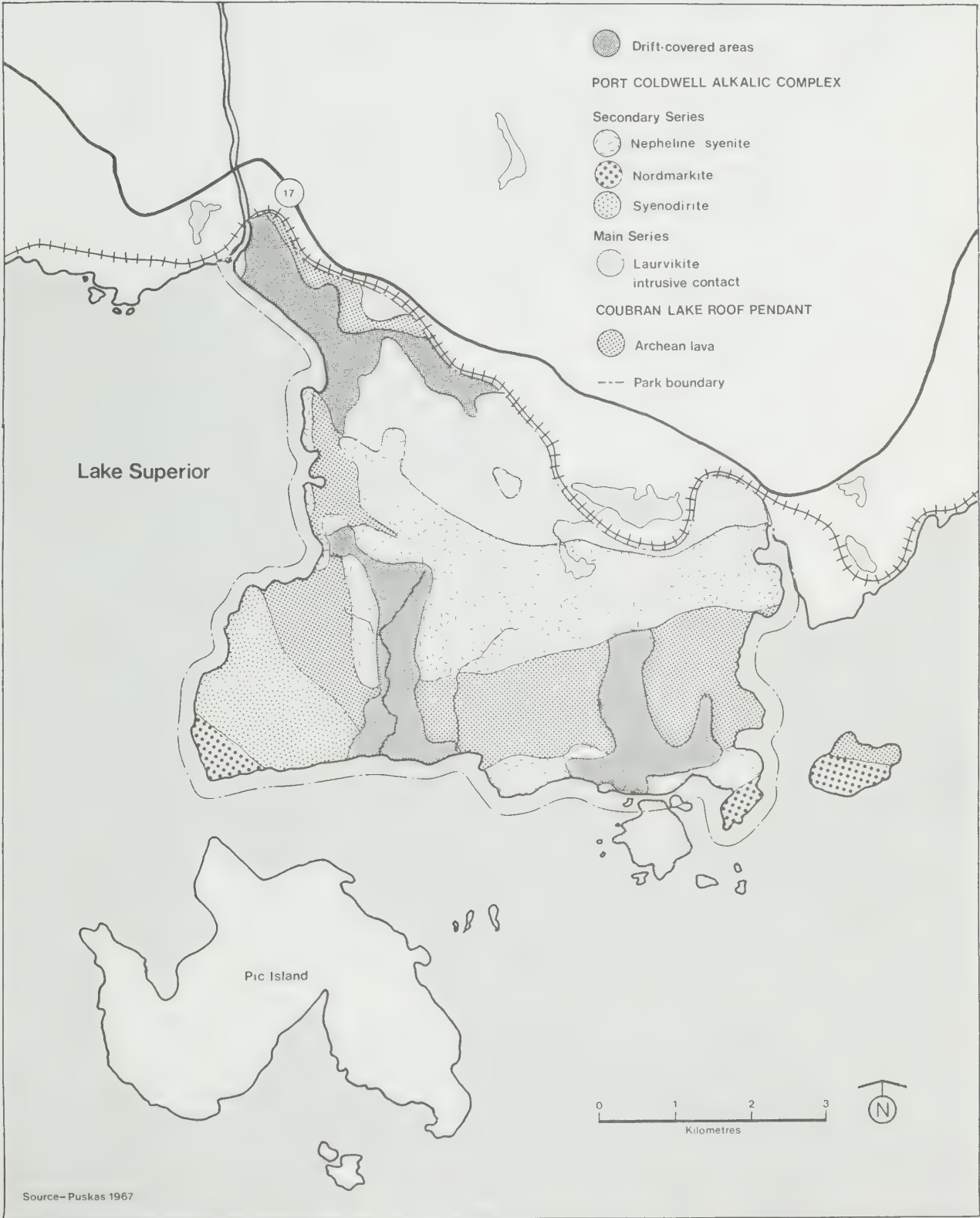
Figure 2

Topography



Figure 3

Bedrock Geology



Geomorphology and Soils

The last major ice advance of the Quaternary period, the Wisconsin, reached its maximum extent about 17,000 years ago (Prest, 1970). The area of Neys Provincial Park remained under ice until 9,500 years ago (Saarnisto, 1974), when one of the final retreat stages at last exhumed the Superior north shore and submerged it beneath glacial Lake Minong.

The direct erosive action of ice on the Precambrian bedrock surface of the Neys area occurred in each of the major glacial phases of the Quaternary period. The modifications by the Wisconsin ice sheet were probably relatively minor. Much of the exposed rock surface is smoothly abraded, and indicates the southerly direction of ice movement by grooves and striations (Billings, 1974). In addition, differential erosion, a result of rock hardness and geological structure, has resulted in the maintenance of a relatively high range of coastal hills, cut by the deeply gouged valleys of the Little Pic River and Killala Road, both initiated along southerly trending structural lineaments of the Coldwell Complex.

The Lake Superior north shore is noted for a general lack of thick glacial tills except where, not later washed by glacial lake margins, a thin veneer of unsorted till does occur. Below the 300-m elevation, wave washed tills and other fluvio-glacial materials form a thin mantle of partially sorted slope debris, which is the typical present cover of the bedrock of Neys Provincial Park (Figures 4a and 4b).

As the Wisconsin ice exposed the Lake Superior north shore, and heavily laden meltwater channels poured sand and silt from the interior into the lake basin, thick varved clay/silt deposits accumulated. Later stages of deposition were characterized by smaller marked seasonal variations in load calibre and contributed younger non-varved stiff, grey clays. These clays compose much of the present offshore lake floor and can be traced in most of the river valleys. They also occupy large tracts of the lower interior, north of the coastal hills. In many cases, though considerably eroded by later fluvial and lakeshore action, the varved and massive clays form a basal deposit between bedrock or till and later superficial materials.

About 9,500 years Before Present (B.P.), a minor readvance of ice came to rest at the present line of the Nipigon moraine. No continuous moraine was formed along the Lake Superior North shore, but ice banked up against the costal hills. In addition, valley glacier tongues interlocked with the margin of glacial Lake Minong which had submerged the recently exhumed area of Neys to the 300-m contour.

At about this time, ice and meltwater in the Killala Road valley deposited a cross-valley moraine and fluvio-glacial delta at the margin of Lake Minong (Figure 4b). Later ablation of the valley glacier caused the damming of meltwaters behind the moraine and delta, and two overflow channels were cut through the delta surface as the meltwaters travelled toward the now declining margin of

Lake Minong. The partial filling in and obscuring of the lower parts of these channels by later deltaic materials suggests a brief readvance of Lake Minong to the 300-m level before isostatic uplift became dominant, and the long history of relative water level decline to present lake began. This readvance is not documented elsewhere at present.

During the lengthy history of falling water levels along the north shore, much of the rock surface of the Neys area was washed by waves, and loose debris was worked, sorted and transported along the shore. Below the 300-m level, the Neys area reveals such former coastal features as beaches, spits, bars and sand dunes. In areas where coarse material prevailed, as on the Coldwell Peninsula and offshore islands, large boulder beaches were fashioned. Nearer to the mouths of streams occupying the Little Pic River valley and the Killala Road valley, where finer material was prevalent, spits and bars formed between exposed bedrock knolls, and later sand dunes formed as water levels fell further.

Continued rapid isostatic recovery dominated the north shore, and although the Lake Nipissing phase (4,200 years B.P.) culminated in a transgression across the southern shore of the Lake Superior basin, no such event occurred at Neys. However, it was during the Nipissing and post-Nipissing Lake phase that the large volume of sands and silts carried by the Little Pic River began to build up to the east of the river mouth against the bedrock slopes. Subsequent centuries of consistent eastward littoral drift built up the Neys beach and dune complex between the 220-m level and the present lake level. Elsewhere in the Neys area, the Lake Nipissing level is hidden by an abundance of accumulation, at or below 220 m. This indicates an abundance of loose material at the wave margin at the time of deposition and at the particular elevation rather than a sustained lake level.

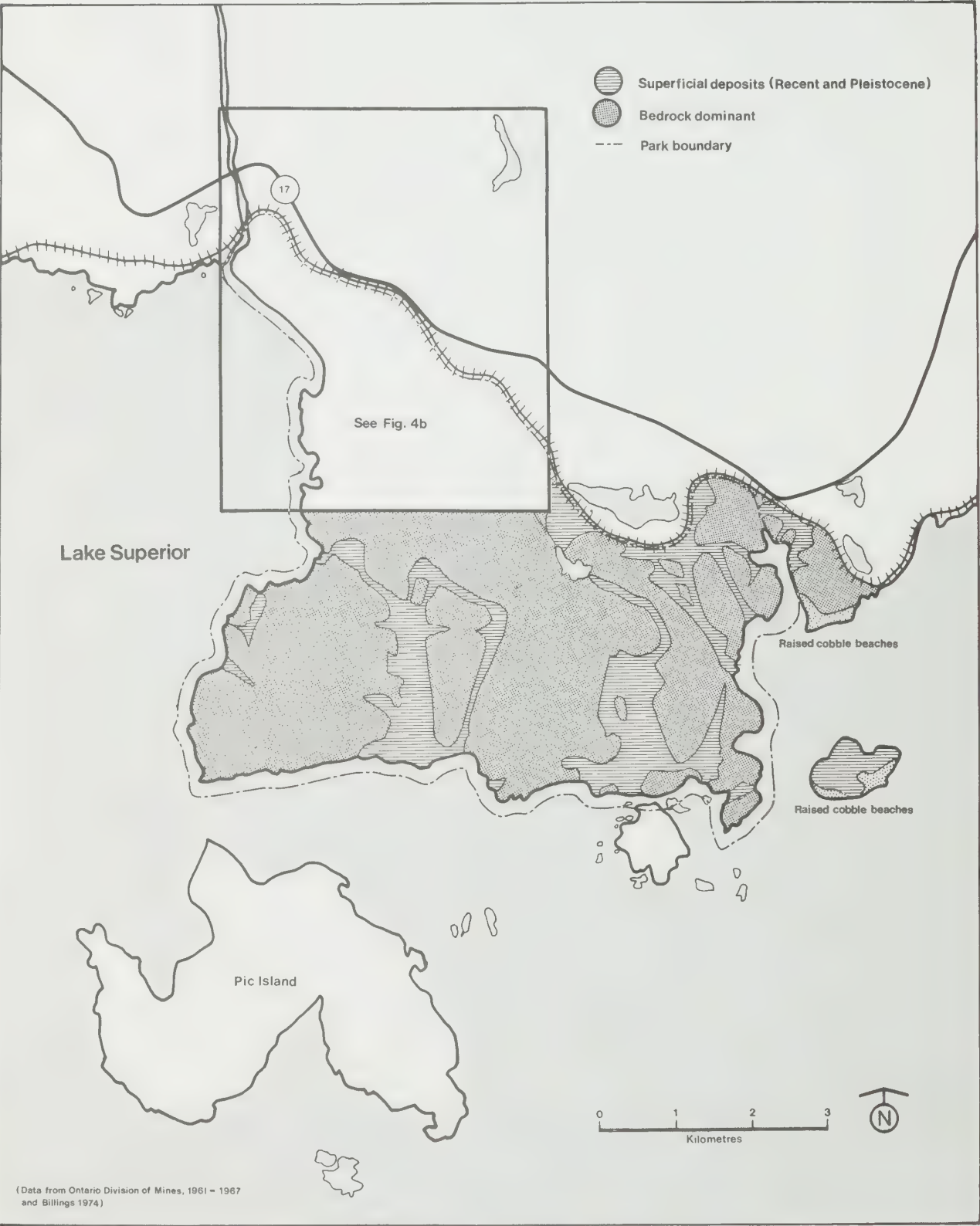
At present, wind modification of the finer deposits and landforms is still proceeding and offers the main threat regarding the potential for man-induced change. The sand ridges and dunes are presently kept stable by a thin vegetation mat, but active deflation hollows and blowouts are seen wherever that protection has been removed. The lower areas behind ridges and dunes continue to develop into bogs, but a lowered water table would cease this process as well as lead to loss of the dune vegetation mat. The Little Pic River still carries a large load of sand and silt to the nearshore area, as is indicated by shoals and a series of offshore bars. However, the present beach profile is a degraded one; erosion of the western end of the Neys beach is apparent as a result of the slight rise in the lake level in the Recent period.

In summary, Neys Provincial Park and the surrounding area show a wide range of geomorphic features and a continuous sequence of palaeogeographic events between ice melt and the present. The Killala Road moraine and delta feature is one of very few such forms on the north shore, and the sand and cobble beach forms, while not unique, display variety and continuity in this area. The well-developed Neys beach and dune complex is an unusual feature of

Figure 4a

Recent and Pleistocene Deposits

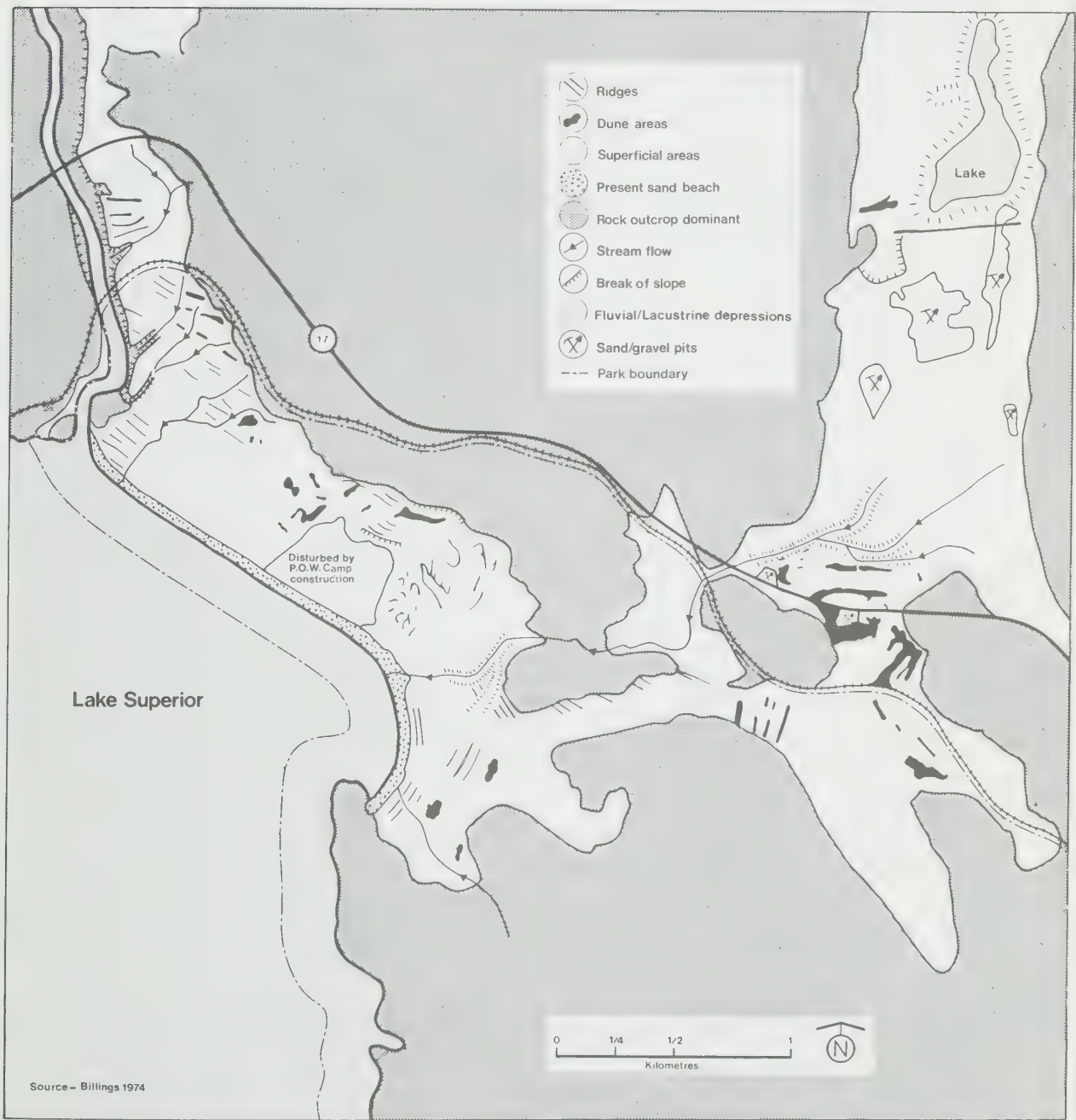
Coldwell Peninsula



(Data from Ontario Division of Mines, 1961 - 1967 and Billings 1974)

Figure 4b

Recent and Pleistocene Deposits
Northwestern Section



Source - Billings 1974

the Lake Superior shore. Although most accessible to users, it is sensitive to the impact of recreational use and development (Billings, 1974).

Vegetation

Neys Provincial Park is located at the southern extremity of the Boreal Forest's Superior Section as described by Rowe (1972). The forests of this section are typified by the occurrence of white spruce, balsam fir, white birch and trembling aspen on drier sites, with black spruce, larch and white cedar dominating on wet, poorly drained sites. Jack pine occurs most frequently on very sandy soils along with white birch. Although typically conspicuous on the top of low hills in the Lake Superior Section, showy mountain ash occurs within Neys along the Lake Superior shoreline.

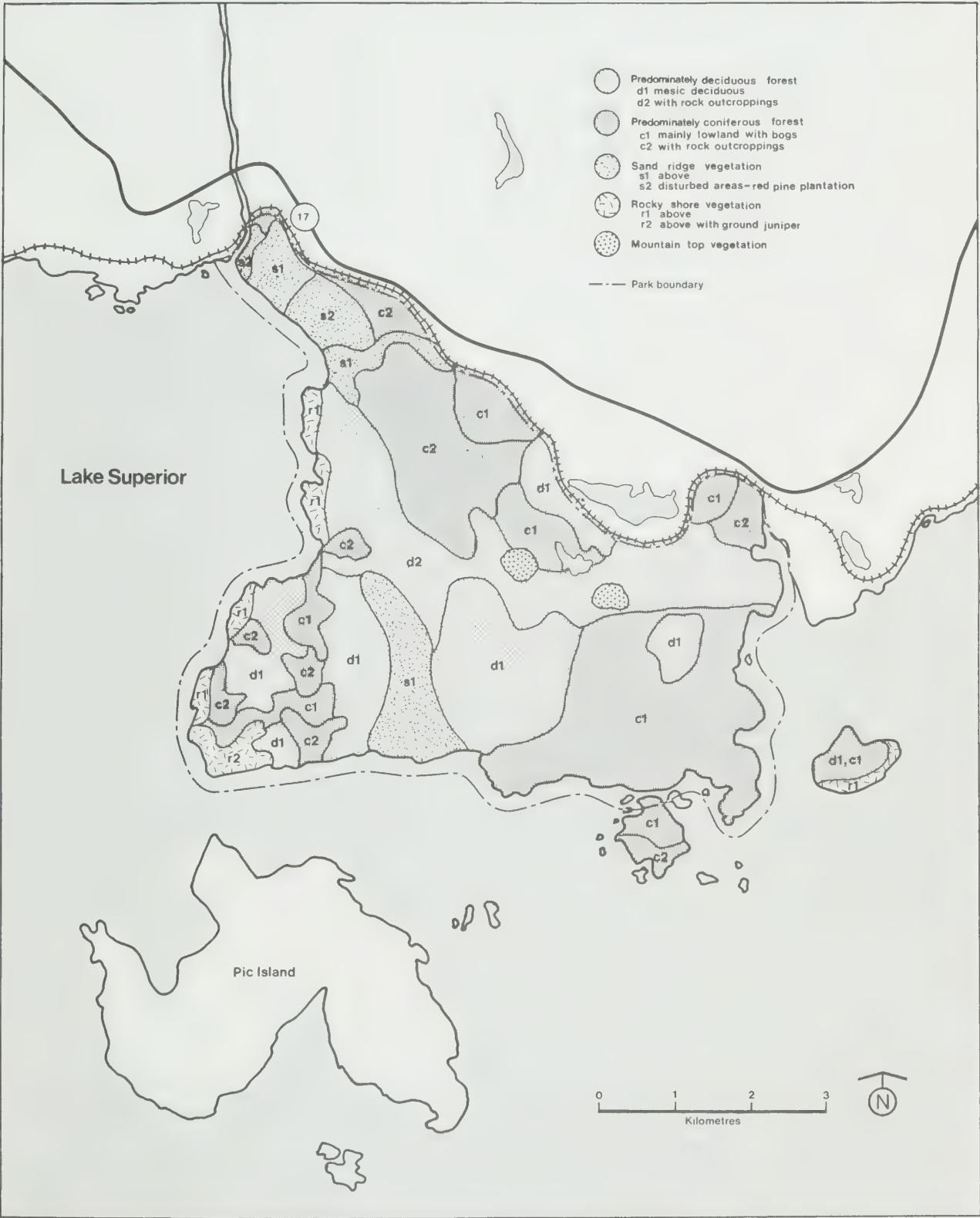
Only small areas of the park have ever been logged; however, a fire which burned approximately one-third of the Coldwell Peninsula in the late 1930s resulted in the area now being forested by deciduous tree species representing the first successional stage in the return of the area to a mature mixed coniferous-deciduous forest. A portion of the flat, sandy northwest corner of the park, which was thoroughly logged, has been replanted with red pine.

The vegetation growing on the sand ridges of the northwest corner of the park and the south valley area is characterized by associations of white spruce, balsam fir, labrador tea and alder on the more stabilized dunes, where organic soils have accumulated, and blueberry, bearberry and various lichens on the less stabilized dunes that support only widely scattered trees (Figure 5). Sand ridges in very wet areas, especially in the south valley, support a sparse cover of black spruce, with an understory of leatherleaf, labrador tea, blueberries, lichens and mosses.

The rocky shore vegetation is an association of lichens, mosses and herbs that can tolerate the severe growing conditions of this habitat. These plants are able to survive in a microclimate that is cooler, more exposed and moister than the microclimate of nearby areas, which are not as strongly influenced by Lake Superior. Lichens cover the bare, wave-washed rocks, while the herbs are restricted to cracks and crevices in the rocks where soil has been able to accumulate. Many of these plants, such as the butterwort, the three-toothed cinquefoil, crowberry and bird's eye primrose, which are not found elsewhere in the park, are part of a vegetation association known as an arctic disjunct community. This is a community isolated south of its main centre of distribution. Arctic species occur at a number of locations along the north shore of Lake Superior, but seldom have these been recorded as occurring any distance from the present shoreline. The plants composing this community are more commonly found at higher latitudes but survive in the park because of the cold microclimates associated with Lake Superior.

Figure 5

General Vegetation Patterns



Large areas of the park are dominated by coniferous forests of spruce, fir and jack pine. Where soils have been able to accumulate, as in the more level terrain of the south valley in the southeastern corner of the park, the vegetation cover may be relatively luxuriant, with an understory of moist mosses, ferns and plants, such as bluebead lily, bunchberry and labrador tea. However, large areas of the southwest corner of the park and other areas of rugged terrain have either very thin soils or exposed bedrock. Here the tree cover is sparse and never forms a closed canopy. Trees are confined to rock fissures in which soil has accumulated, and the open areas between them are dominated by lichens, blueberries, bearberries and alder, with a few scattered wildflowers, such as the bluebead lily and large-leaved asters. Where these rock outcroppings are shaded and moist, ferns, clubmosses and ground mosses predominate below the fir and spruce overstory. The southwestern corner of the park is dominated by these rock outcrop associations.

Much of the central portion of the Coldwell Peninsula is dominated by a deciduous forest of white birch and trembling aspen, with balsam fir, white spruce and mountain ash as less important components. This forest type probably covers that portion of the park burned over in the 1930s. Shrub cover is sparse in this area and is composed of mountain maple and speckled alder. Mosses are noticeably absent from the ground flora, but bunchberry, clubmosses, blueberry, starflower and bluebead lily are among the many plants that are found on the floor of this forest. As with the coniferous-dominated forests, there are areas of relatively deep soils where slopes are not extreme, and there are areas of steep slopes, shallow soils and bare bedrock exposures. Trees are generally smaller and more widely-separated in the latter areas, and lichens, blueberry and honeysuckle dominate the ground flora. Mosses and clubmoss are common on the shaded bedrock outcroppings in this forest type.

The significance of the park's vegetation is exemplified by the presence of a heath-type vegetation growing on sand beach ridges including examples of disturbed and natural sand dune formation. Wind-swept alpine-like vegetation grows on the mountain tops in the park interior, and a rich lichen and arctic-alpine disjunct flora grows on the exposed rocks near the lake edge. The fact that the forests have seen quite limited and localized disturbance by man is also quite significant.

Wildlife

The wildlife of the park is representative of the boreal ecosystem in a state relatively unaltered by man. All three species of deer found in Ontario--moose, white-tailed deer and woodland caribou--are potentially present in the park, as are timber wolves that prey upon them. Black bears forage large quantities of blueberries, while red fox prey on snowshoe hares, ruffed grouse and spruce grouse on the rugged park hills. Beaver occupy the few small lakes and streams, and wetlands provide a habitat for such animals as mink, great blue herons and the few species of frogs that can survive the long, cold, boreal winter. The eastern garter snake is the only reptile found in the

park. Ravens, warblers, thrushes, sparrows and many other kinds of birds nest in the forests of the park, while the beach at the mouth of the Little Pic River provides a resting place for migrating geese, ducks and sandpipers.

The park's small streams and lakes contain brook trout, and the Little Pic River contains northern pike and rainbow trout. Lake Superior contains the above three species of fish along with lake trout and many other species not as commonly sought after by sportsmen, such as pink salmon and sturgeon.

Undoubtedly, the animal that has attracted the most attention in the park is the woodland caribou. Two herds of woodland caribou are believed to be in the vicinity of the park, one herd of approximately 10 animals on Pic Island and a second, slightly smaller herd on the mainland which wanders in and out of the park. During the last 100 years, these interesting animals have been retreating to more and more remote portions of the province, away from the influence of man. Hunting pressure and the alteration of the natural environment by fire, logging operations and general human developments are thought to be the main reasons for the decrease in their numbers. Caribou is the only species of deer in the province that is well-adapted to live in the mature boreal forest. Moose and deer prefer young shrubby forests, such as those which follow logging operations or fires. Consequently, moose are not as common in the park as they are in more suitable areas of Northern Ontario. White-tailed deer, at the northern edge of their range, if present, occur in very low numbers.

Man and the Parkland

History

In some ways, Neys Provincial Park may be regarded as a microcosm of the north shore area. The history of man's occupation of Neys Provincial Park and the surrounding area is chronicled in Table 1 and Table 2. Archaeological investigations of Neys Provincial Park were initiated in 1960, when Dr. J. V. Wright of the National Museum Canada surveyed the east bank of the Little Pic River between the Trans Canada Highway and Lake Superior.

Within the park, thinly-layered, but extensive remains of the Laurel Culture (200 A.D. \pm 400 years) campsite were located at the mouth of the river (DeIp-2). Excavations in 1960, 1964 and 1967, under the auspices of the National Museum, produced fragments of clay cooking vessels, stone and native copper tools and animal bones indicative of repeated short-term visitation of the site. Over the ensuing years, park staff, junior rangers and local collectors removed surface finds from this campsite, and it was not until 1973 that the Ministry of Natural Resources could arrange to have an archaeologist revisit the Little Pic site. Mr. W. A. Fox of the Historical Sites Branch, Ministry of Natural Resources, visited the site in October 1973, in order to ascertain the exact extent of the archaeological remains. Test pitting disclosed a rich cultural deposit west of the National Museum's excavations, and consequently, a 1-m square was excavated. No Laurel Culture artifacts were encountered, but a stratified Terminal Woodland/Proto-Historic occupation (c. 1200-1700 A.D.) was evident. Animal bone, including the remains of loon and beaver, clay vessel fragments decorated in a style common to the northeastern Wisconsin area and two fragments of European metal goods were recovered from the top layer. Burnt fragments of animal bone and clay vessel fragments, decorated in styles characteristic of the Blackduck Culture and also of groups in the northern Michigan area, were excavated from the bottom layer in association with stone artifacts.

A complete park survey was initiated in 1974 by a crew of three archaeologists led by Mr. B. M. Newton. The sand plain at the Little Pic River mouth was surveyed intensively, following which a brief park shoreline reconnaissance was undertaken. Several interior transects were completed, and Detention Island was visited briefly. Three previously unknown prehistoric campsites of Laurel (DeIp-4) and Blackduck (DeIp-3, DeIp-4) cultural origin were discovered on the sand plain. Excavation of four 1-m squares on one of the Blackduck sites indicated that valuable new information concerning Blackduck Culture community patterns awaits further intensive excavation on this campsite.

The remaining discoveries in Neys Provincial Park and on Detention Island were of rock structure sites. These usually consisted of a series of shallow, circular depressions excavated into raised cobble shorelines. Two such sites (DeIp-6, DeIp-7) were located in the park proper, one of which was located on an isolated Nipissing-Great Lake stage cobble beach remnant (4,000 B.C), some 45 m above present Lake Superior. Extensive remains, displaying more diversity of form than those on the mainland and including three rock structure concentrations and a variety of isolated features, were located on Detention Island (DeIp-8, DeIp-9, DeIp-10). Eighteen structures were recorded on the Billings site, including circular and oval pits and rectangular floors. Although there has been no consensus of opinion as to the function of these rock structures, commonly termed "Pukaskwa Pits", it seems that they were used in both secular and religious activities and that their variations in form reflect these varying uses.

In summary, the archaeological evidence to date suggests that human occupation of the Neys area may have occurred by 4,000 B.C., but certainly was well established by approximately A.D./B.C. Sporadic, probably seasonal occupation, continued up to the early Historic era, especially in the vicinity of the Little Pic River mouth. The occupants of these small camps may have harvested spawning fish to supplement their other generalized hunting and gathering activities. During various prehistoric periods, rock structures were constructed on suitable cobble beaches along the Lake Superior north shore.

Historically, man's presence in and around Neys Provincial Park may be characterized as temporary in nature. Archaeological survey work indicated the presence of several prehistoric campsites within Neys, and the writing of Euro-Canadians since the mid-17th century suggests a similar pattern of sporadic visitation and camping in this locale. Lake Superior's north shore, or as it has aptly been termed "the armoured shores of Superior", has been consistently inimical to the establishment of prolonged and extensive human settlement. It is only recently that man's technical advances have made an impression on the landscape; until this century activities were restricted by Lake Superior's rugged topography and a climate of seasonal variation.

The story commences by piecing together the history of the native bands who subsisted in the vicinity of today's park. Historical documentation, particularly before the 19th century, provides only the names of the several native groups dwelling along the north shore of Lake Superior. Further ethno-historical and archaeological research appears necessary before the origins and life styles of these native bands can be ascertained. From a linguistic standpoint, these early inhabitants of the north shore may have been related to the Algonkian-speaking peoples. However, the beginning of the 19th century, Ojibwa peoples had taken up residence near the mouth of the Pic River. A community with ancestral ties to these people resides in the same area, in Heron Bay Reserve, so designated by the 1850 Superior-Robinson Treaty. The Neys-Port Coldwell locale was particularly

Table 1: Significance of Archaeological Features

<u>Site</u>	<u>Theme</u>	<u>Theme Segment</u>	<u>Rating</u>	<u>Association</u>
DeIp-2	Indigenous Settlers, Traders and Potters	Laurel Peoples	A	Direct
		People of the Blackduck Zone	A	Direct
		People of the Michigan Zone	C	Direct
DeIp-3	Northern Hunters and Fishers	People of the Blackduck Zone	A	Direct
DeIp-4	Indigenous Settlers, Traders and Potters	Laurel People	A	Direct
DeIp-5	Northern Hunters and Fishers	People of the Blackduck Zone	A	Direct
DeIp-6	Unknown			
DeIp-7	Unknown			
DeIp-8	Unknown			
DeIp-9	Unknown			
DeIp-10	Unknown			

Source: Newton et al, 1975

Table 2: Significance of Historical Features

<u>Historical Features</u>	<u>Regional Historical Theme Segments</u>	<u>Association With Neys Provincial Park</u>
Canadian Pacific Rail Line	North shore rail construction period.	Peripheral
C.P.R. Little Pic River Bridge	North shore rail construction.	Direct
Boom Logs	Timber activities, Little Pic limit.	Direct
Prisoner of War Camp Site	Establishment of World War Two Northern Ontario P.O.W. internment and bush camps.	Direct
Rafting Boats	North shore of Lake Superior Pulp and Paper Timber activities, Little Pic limits.	Direct
Depression Highway Camp	1930s attempted construction of Trans Canada Highway	Peripheral
Pigeon Timber Company Camp Site	North shore of Lake Superior Pulp and Paper Timber Activities, Little Pic limit.	Direct
Pigeon Timber Company Camp	North shore of Lake Superior Pulp and Paper Timber activities, Little Pic limit.	Direct
Boom Camp, Pigeon Timber Company	North shore of Lake Superior Pulp and Paper Timber activities, Little Pic limit.	Direct

Source: Mountain, 1976.

important to the Ojibwa peoples as a source of blueberries, great quantities of which were picked and sold by the Heron Bay band for markets in the western provinces.

The fur trade conducted in this region is better documented than the history of the native people. Archaeological evidence suggests that the French were actively trading at the mouth of the Pic River before 1759. The North West Company maintained a post at this location beginning before 1793, and it is possible that an XY Company post was erected there in 1804 in opposition to the North West Company establishment. The Hudson's Bay Company took over fur trading operations at the Pic River in 1821 with the merger of the North West Company and Hudson's Bay Company. This company's operation at the Pic River continued virtually uninterrupted until 1865, when the productivity of the fur harvest along Lake Superior's north shore appeared to be declining.

Following the decline of the fur trade, the next stimulus to development in this region involved the construction of the Canadian Pacific Railroad. With its completion in 1885, the C.P.R. at once revolutionized travel along the north shore and fostered the establishment of towns such as Jackfish and Port Coldwell, which were supported directly through C.P.R. employment. In addition, the railroad facilitated the development of an important secondary industry, commercial fishing. The village of Port Coldwell expanded because of a thriving whitefish and lake trout fishery.

The first decades of the 20th century witnessed the beginning of the lumber and pulpwood industries in the vicinity of Neys. The industries were centred in the Pic River valley and to a lesser extent in the Little Pic River valley. Pulp cutting continued through the 1940s, when a prisoner of war camp was established near the mouth of the Little Pic River. This German officers' camp and other similar camps along the North Shore provided the manpower for pulp-cutting during the Second World War, with P.O.W.'s cutting an estimated 90 percent of the timber harvested during these years. The location of such camps in this region reflected the continuing isolation of the Neys area even into the 1940s.

Further attempts to open up the north shore involved the highway construction activities of the depression years and culminated in the completion of the Trans Canada Highway in 1960. The improved transportation system has facilitated the growth of the pulp and paper industry along the north shore and has encouraged mineral exploration and development in the north. Also, the scenic and rugged topography of Lake Superior's northern shoreline has attracted a large tourist trade.

Existing Development

Neys presently provides opportunities for camping, picnicking, boating, scenic walking, viewing, nature interpretation and hiking (Table 3, Figure 6a and Figure 6b). Although most swimmers find Lake Superior too cold, the 1.5 km-long Neys beach is the park's outstanding accessible natural attraction. Consequently, the park's facilities are concentrated in its northwestern corner in close association with this natural feature.

Table 3: Present Facilities

Camping Areas:

3 campground units	19.5 ha
total campsites	153
campsites without electricity	123
campsites with electricity	30
comfort station	1
privies	10
amphitheatre (parking spaces, 2 privies adjacent)	1
trailer dumping station and water filling station	1

Picnic Areas:

2 picnic areas	3.5 ha
day-use parking spaces	30
privies	4

Beach	1.5 km
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Boat Launch Area	1
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Trails:

2 nature trails (total)	2 km
1 hiking trail (total)	15.5 km

Park Road (excluding campground roads)	5 km
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Park Administration:

park office	1
gatehouse	1
staffhouse (14-person)	1
maintenance building	1
gas storage shed	1

Junior Ranger Camp:

cabins	8
washrooms	1
cookery	1

Water System	1
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Figure 6a

Present Development

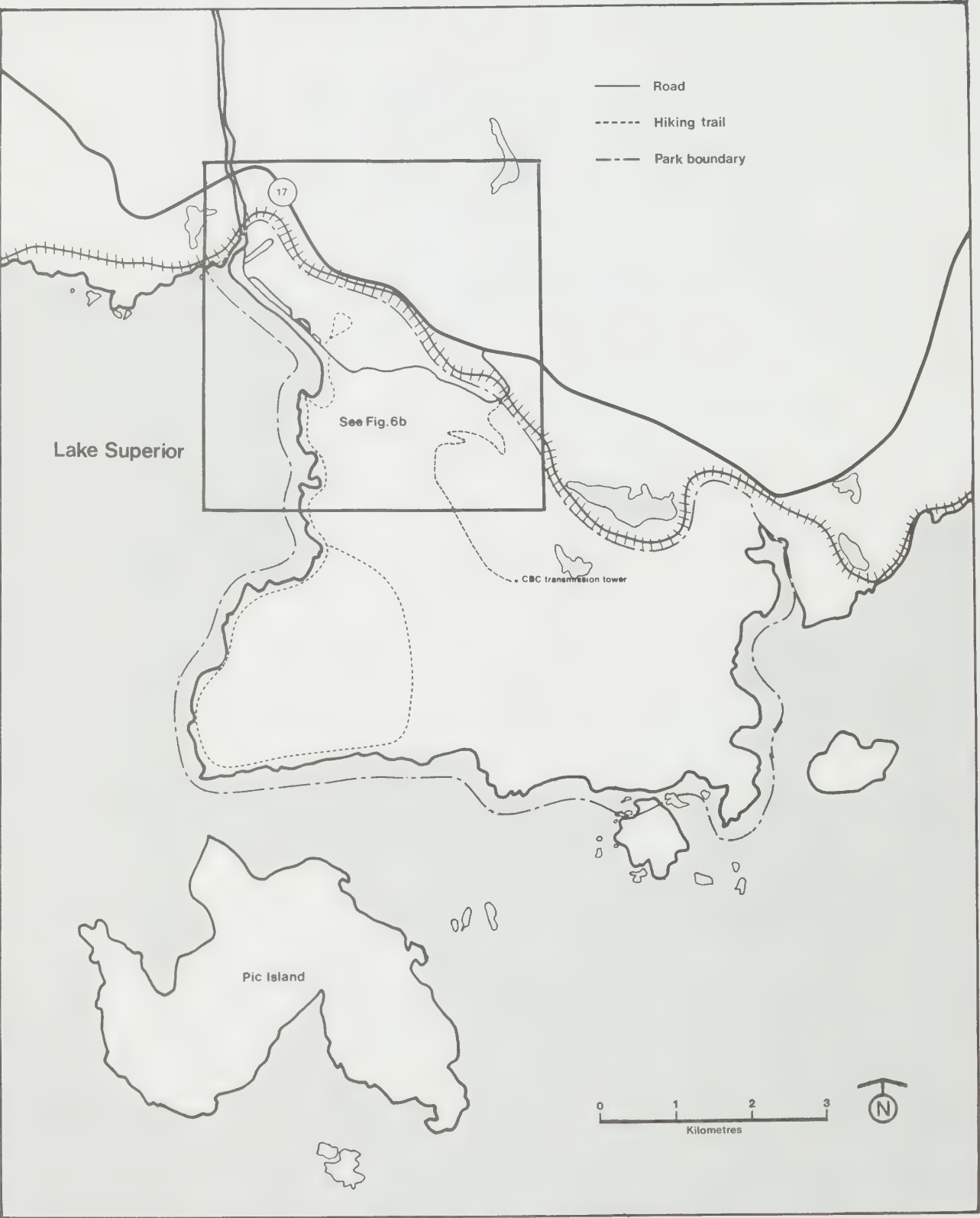
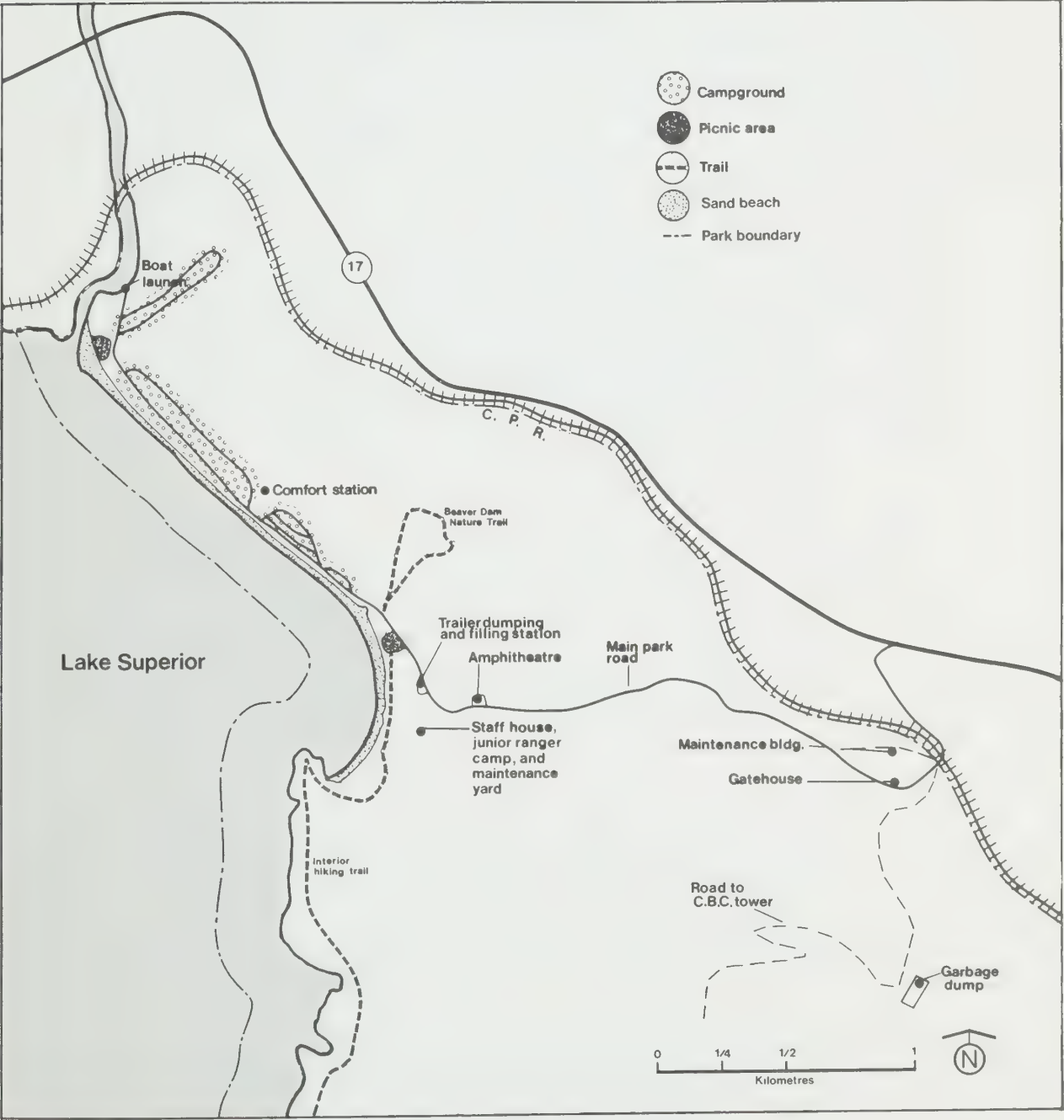


Figure 6b

Present Development

Northwestern Section



Camping

Camping opportunities are provided in three consecutive camping areas which contain 153 campsites. The easternmost area occupies approximately 3.5 ha and contains 30 electrically-serviced sites. Additional services include four privies (maximum walking distance from a campsite is 45 m) and a firewood supply shelter. This area, with sparse tree cover, provides an excellent view of Lake Superior.

The central and western camping areas, occupying approximately 16 ha, contain 123 well-buffered sites. These areas provide opportunities for campers desiring privacy. Each campsite is 15 m in diameter, with a 15-m forested buffer between sites. Services include 10 privies (maximum distance is 150 m), five firewood shelters (maximum distance is 150 m) and water outlets (maximum distance is 45 m). Finally, situated on the eastern margin of the area, a comfort station containing shower and laundry facilities has been developed to service all three camping areas.

Picnicking

Picnicking opportunities are provided at two separate and rather small sites adjacent to Neys Beach. The western site, situated at the mouth of the Little Pic River, occupies 2 ha and contains 15 tables. The eastern site, situated near the eastern end of the beach, occupies 1.2 ha and contains eight tables. Services provided at each site include picnic tables, fireplace grills, water and privies. The adjacent beach provides opportunities for a wide variety of related activities.

Boating

A small boat launching ramp is located in the westernmost campground approximately 0.4 km upstream from the mouth of the Little Pic River. This facility provides access to Lake Superior and the Little Pic River, which is navigable for a short distance upstream. The boating opportunity is truly spectacular although the user must exercise caution because of the potential hazards of Lake Superior. On occasion, sand bar development at the mouth of the Little Pic River obstructs access to Lake Superior.

Hiking, Scenic Viewing and Nature Interpretation

The shoreline of Lake Superior, particularly the 1.5 km-long Neys beach adjacent to the park's developed northwest sector, is an outstanding natural recreational resource and the area's greatest attraction. The size and scenic quality of the beach, as well as the scattered driftwood and debris which are washed ashore, create a popular focal point for viewing and casual exploration.

The park contains two nature trails, the Beaver Dam Trail (1 km) and the Point Trail (1 km). The Beaver Dam Trail originates in the eastern picnic area, traverses the red pine plantation, winds its way to the site of a beaver dam and returns. The Point Trail, also

originating at the eastern picnic area, extends to a rocky point on the southern edge of Prisoner's Cove and provides access to an interesting dune formation along the way and remnant boom boats at the point itself. Perhaps most striking is the pleasing view of the beach and surrounding topography available from the point.

Two additional trails are oriented primarily to viewing. A major 15-km hiking trail provides access to rugged shoreline segments of west Coldwell Peninsula, and a 1.5-km trail north of the developed sector of the park provides access to a series of rocky knolls, offering a variety of views of the northwest corner of the park, the beach, the lake and the Coldwell Peninsula.

The park's major interpretive facility is an amphitheatre situated beside the main access road, immediately east of the administrative complex. Unfortunately, the facility is far-removed from the focal point of user activity.

Non-conforming Uses

Remaining park developments are extraneous to the recreational facility infrastructure discussed above (Figure 7). There are two alienated lots. The first (DC 54) is owned by a summer resident and occupies 0.3 ha on the northwest shore of Coldwell Bay. The second (PP 816), on which a Canadian Broadcasting Corporation (C.B.C.) relay tower has been constructed, occupies 3.3 ha in the heart of the Coldwell Peninsula. An access road and hydro line, maintained by the C.B.C. under a license of occupation, have been developed to service the tower.

Adjacent Land Use

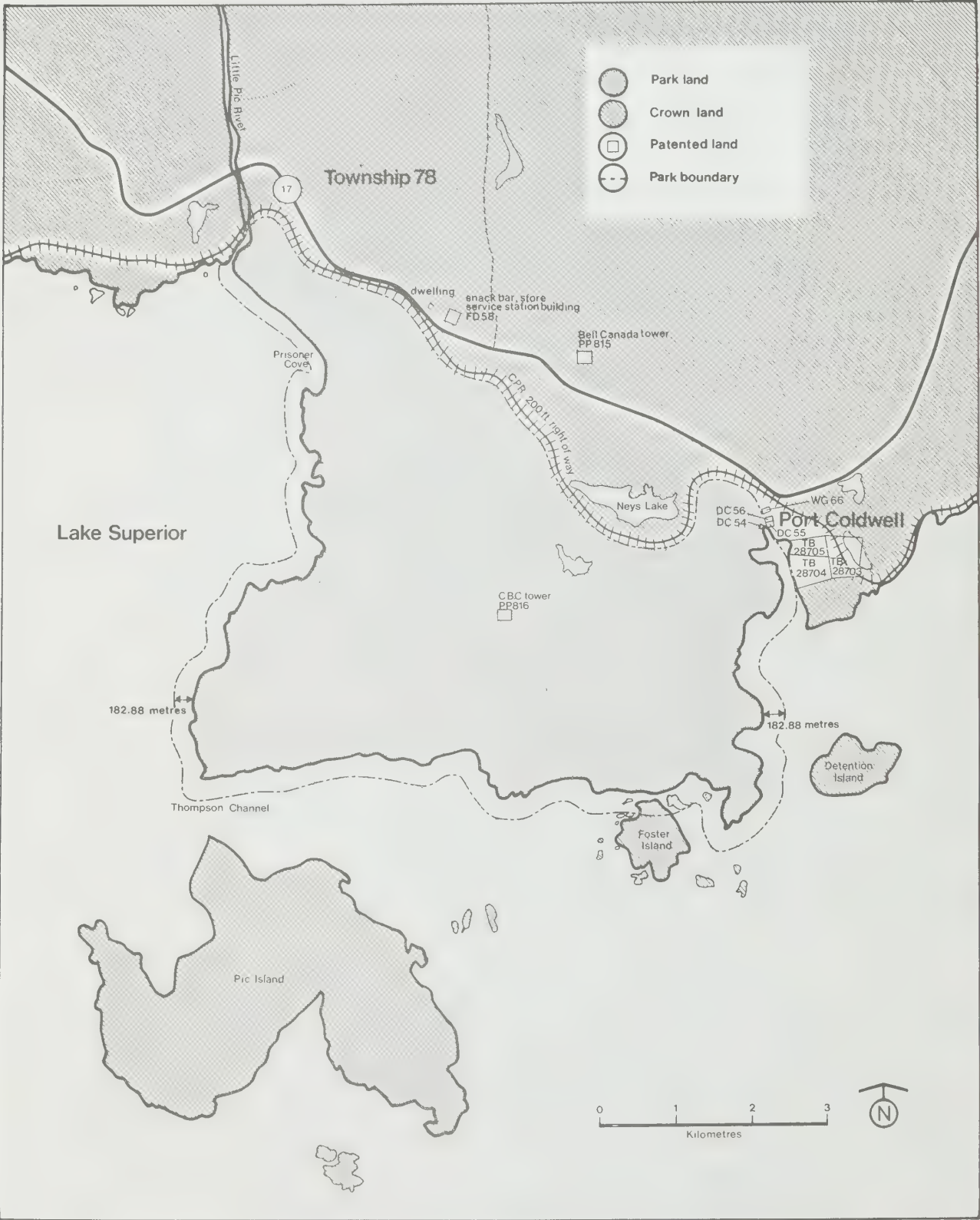
Land adjacent to the park is mainly Crown-owned. The northern boundary of the park abuts the C.P.R. main line, which is paralleled by the right-of-way of Highway 17, lying north of the rail line. Two patented lots, a 2.3-ha lot containing a snack bar-store-service station complex (FD 58) and a 3.8-ha lot containing a Bell Telephone tower (PP 815), are located north of Highway 17 in the vicinity of the park. An additional lot containing one dwelling is occupied under a land-use permit (Figure 7).

The village of Port Coldwell fronts the park's eastern boundary. Once a thriving fishing village, the population has since dwindled to 22 year-round residents and 12 summer residents (1970). The village contains three patented lots of 0.2 ha (WG 66), 0.27 ha (DC 56) and 0.27 ha (DC 55). In addition, there are 12 lots occupied under land-use permits. No development has taken place on three mining claims of 17.66 ha (TB 28703), 13.38 ha (TB 28704) and 10.73 ha (TB 28705), which are situated immediately southeast of Port Coldwell.

The islands south of the park, principally Pic Island, Forest Island and Detention Island, are owned by the Crown. Twenty-eight percent of Pic Island, the largest of the group, is designated as Protection Forest by the Ontario Ministry of Natural Resources.

Figure 7

Local Land Use



Analysis of Park Resources

This section draws heavily upon the preceding inventories of the park's natural and cultural resources in order to determine the potentials and limitations of its resource base with regard to the supply of opportunities to park users. In essence, this section attempts to translate the objective inventory of the park's resources into a form relevant to resource management decision-making by considering the capability of the resource to sustain use and associated development, the visual quality of the resource and finally the park's interpretive potential.

Environmental Analysis

The environmental analysis provides a reference for establishing development and management alternatives. Such an analysis reveals the appropriateness of a given approach to park management within an environmental context.

The assumption inherent in this type of analysis is that neither use nor associated development should have a detrimental effect on natural processes and land forms. Such an assumption is, of course, particularly appropriate in the context of a provincial park. It is recognized that all use and development must result in some degree of impact; however, the intent is that such impact should not impair the natural integrity of the resource base.

The first step in the environmental analysis was the division of the park into landscape units or areas of relative internal physical homogeneity. For each landscape unit, relevant features (i.e. topography and slope, geomorphology and soils, drainage, vegetation cover and micro-climate) were described and the development potential assessed (see Appendix). Finally, the unit's overall degree of constraint was rated on a six-point scale. The rating of units is represented graphically in Figure 8a and Figure 8b.

A review of the summarizing maps (Figure 8a and Figure 8b) and the more detailed data chart (see Appendix) reveal that Neys is not generally capable of sustaining high incidences of use and associated development. The extreme topographical constraints of the Coldwell Peninsula, comprising over 90 percent of the park's total area, result in an overall high constraint or low capability rating. Although topographical constraints are not a significant factor in the remaining 10 percent of the park a generally low capability rating results from the instability of soils, the fragility of pioneer vegetation and variable hydrological conditions. Within this area, the established development pattern already occupies those pockets of relatively high capability. Because the remaining undeveloped sectors have generally high constraints on use and associated development, they are capable of sustaining only those extensive uses requiring minimal physical development.

Figure 8a

Environmental Analysis

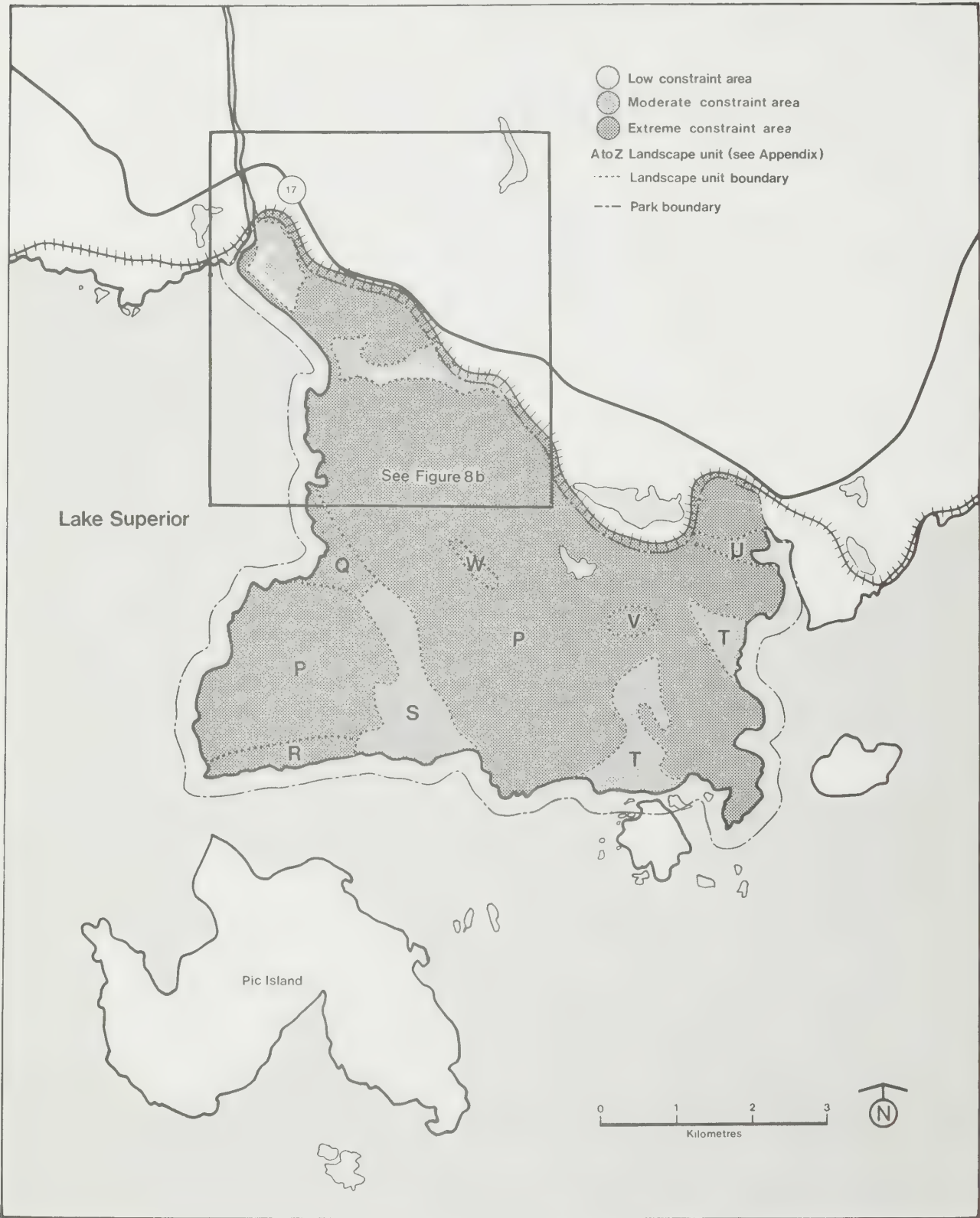
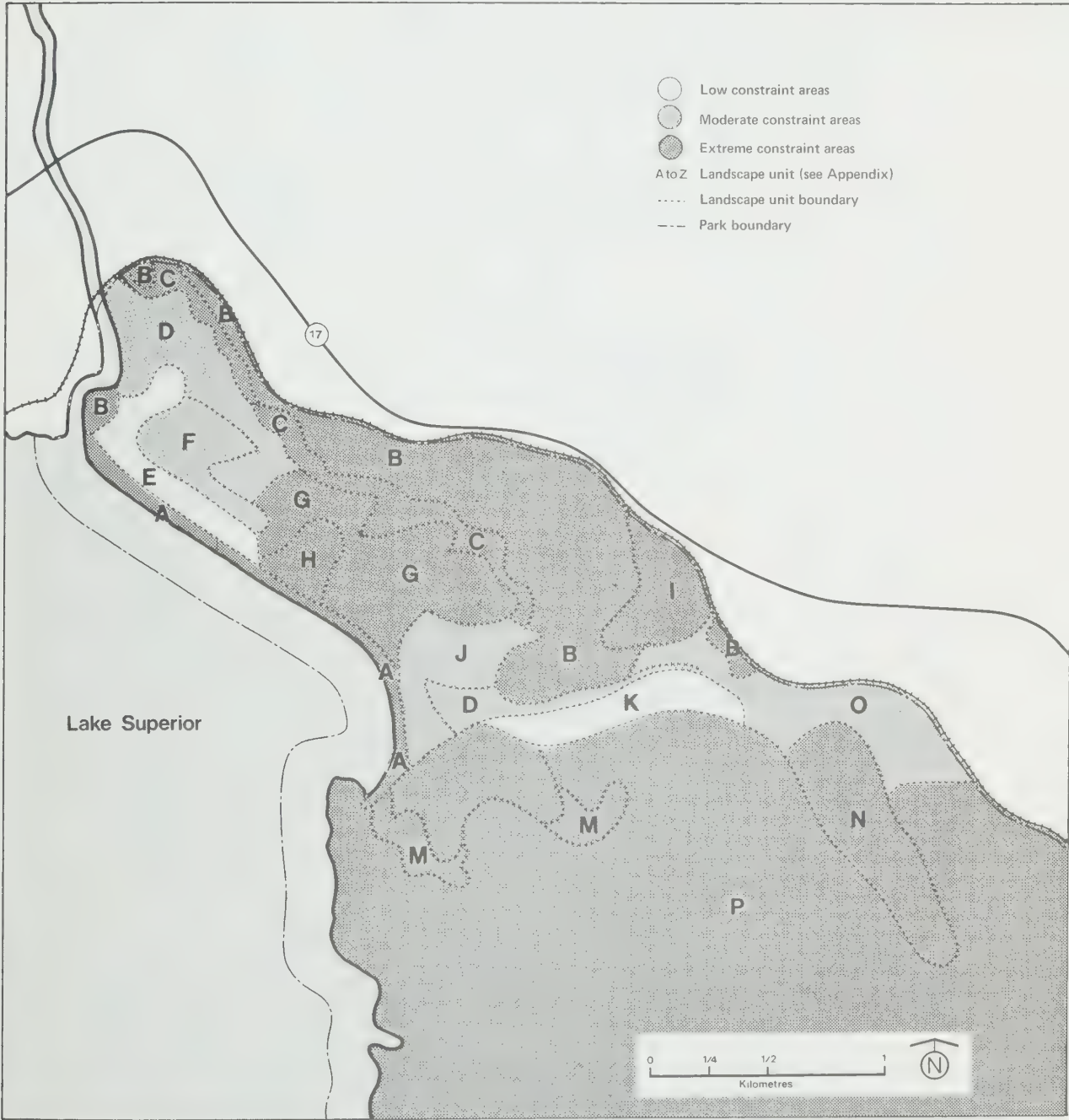


Figure 8b

Environmental Analysis

Northwestern section



Visual Analysis

Aesthetics is an important component of park resource analysis, because the quality of the user's experience is largely dependent upon how pleasing his contact is with the natural environment. Although the appreciation of a park's resources depends on the use of all the senses, visual contact is the most important factor. Consequently, features and landscapes of high visual quality must be identified in order that they may be protected and they may serve as nodes in a user distribution network. The following assessment of the visual resources of Neys Provincial Park is a highly subjective one as individual perceptions of landscape aesthetics vary.

The abrupt and rugged relief of Neys creates a multi-image landscape, where the horizontal and vertical visual planes combine to form a rich pattern of landforms and spaces. In analysing the visual landscape components of Neys, an attempt is made to identify the types and quality of aesthetics which could be appreciated by the park user (Figure 9).

The visual analysis consists of an examination of the types of vistas within the park and a classification of the different landscapes viewed from these vista points. Although a rigid classification is almost impossible, certain vistas reveal different characteristics of the landscape. The landscape of Neys Provincial Park is classified as follows: panoramic, feature, enclosed, canopied and detailed and changeable.

Panoramic Landscape

A panoramic view allows the focus of the eye to vanish into infinity. Panoramic lookouts are strategic points of orientation, where the viewer can survey the landscape in every direction.

At Neys, major summits and upland areas offer panoramic viewing. The upper summits (e.g. Premier Mountain) offer spectacular 360° panoramas. Here the viewer is drawn to the distant horizontal planes of shorelines and landforms. The high ridge lines in the interior of the park provide major vistas overlooking enclosed landscapes below the viewer as well as panoramic views of the more distant park area.

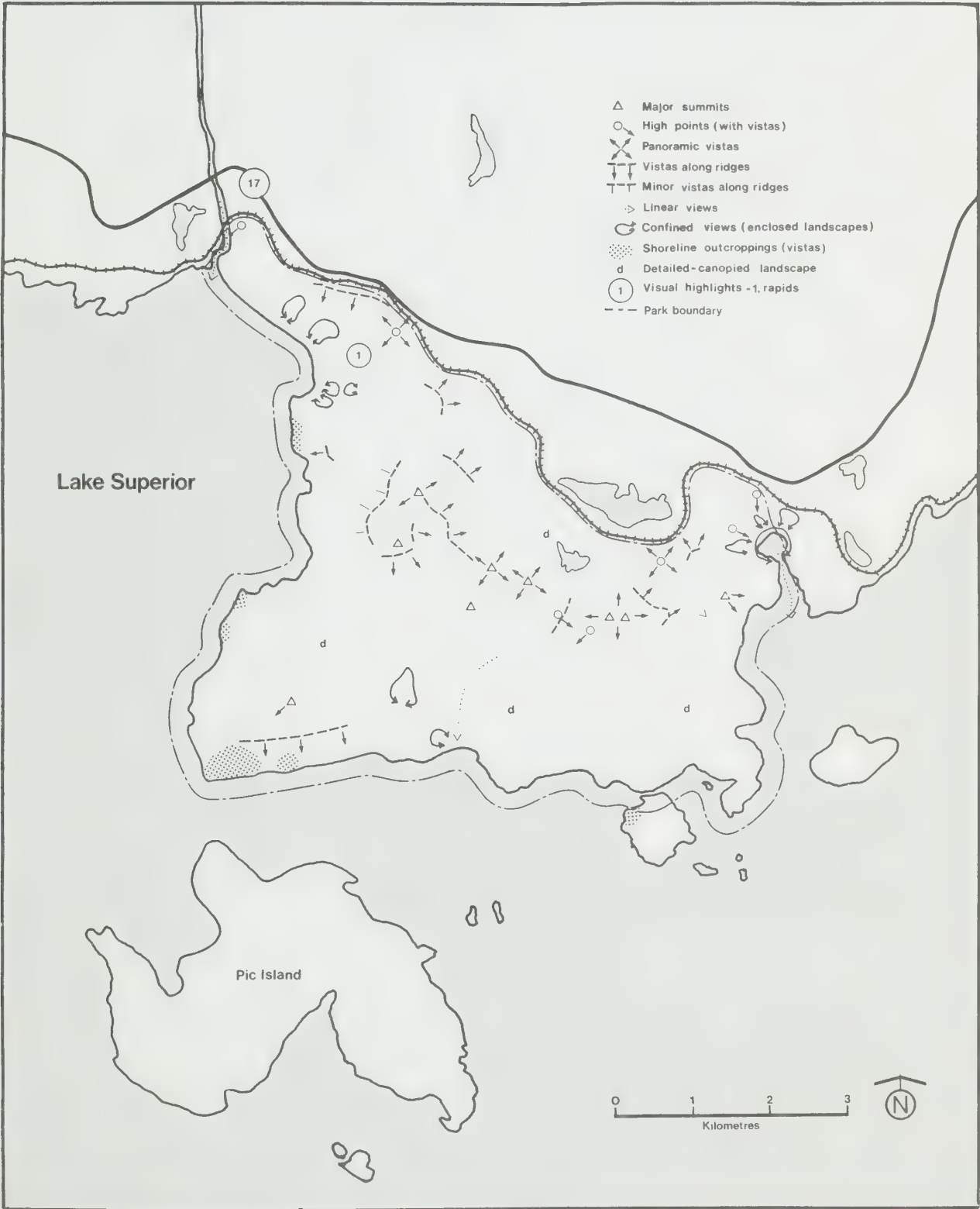
Feature Landscape

Landscapes can be dominated by various "commanding" features when observed at various scales. Depending on the composition of a landscape, a feature landscape may be characterized by a mountain, a lake, a tree, etc.

At Neys Provincial Park, the pyramid-like hills of the interior dominate the landscape when viewed from the valley. Feature landscapes of a lesser scale can be found along stream courses (i.e. rapids and beaver ponds) and small lakes of the interior.

Figure 9

Visual Analysis



Enclosed Landscape

Landscape enclosures are delineated by the ground and vertical planes. Here the viewer experiences the seclusion of a clearing or a land depression. The periphery of the enclosure is usually defined by the tree line or bordering landforms.

In Neys Provincial Park, enclosed landscapes of various scales are exemplified by the sparsely-vegetated clearings within the valleys of its south central portions and the small lakes in its north central area. These confined vistas are usually viewed from the ground level, although Neys provides excellent opportunities for viewing the enclosed landscape in context from the upland area.

Canopied and Detailed Landscape

The canopied landscape occurs where the tree canopy forms a low overhead plan. This overhead "lid", coupled with a shortened depth of perception, draws the viewer's vision towards the ground planes and causes the viewer to concentrate on the immediate foreground. The resulting detailed landscape is usually found in association with the canopied landscape. Both landscapes are best appreciated when viewers are walking or hiking.

Neys abounds in canopied and detailed landscapes, largely because of the predominance of deciduous vegetation throughout much of its area. Lichen and mosses along the rocky shoreline and on the interior outcroppings add to the rich variety of detailed viewing in Neys. Opportunities for more subtle detailed viewing offer a counterbalance to the park's more overpowering vistas.

The Ephemeral Landscape

The visual world is never static. The image of the landscape is forever changing, exhibiting the dynamic processes of nature through time. Depending on temperatures and seasonal or atmospheric conditions, all of the types of landscape described above will appear differently to the viewer.

Conditions, such as fogs and sunsets, produce striking landscapes. For example, the sunsets at Neys as viewed from the beach in the northwest, are perhaps the most spectacular anywhere along the Lake Superior shoreline. On a foggy day, the interior of Neys appears quite mountainous, as the hilltops tower above the mist in the valleys.

Flight patterns of birds, the soaring of hawks and the gliding of seafulls add to the changing atmosphere of Neys. The shoreline reflections of offshore islands and the still waters of the interior lakes add to the ever-changing moods of Neys Provincial Park.

Interpretive Assessment

This section examines the natural and cultural resources of the park to determine their potential interpretive value (Figure 10). Resources of relatively high interpretive value may then be considered for an interpretive program that would communicate their significance to the users. By stimulating user interest, the interpretive component of the visitor services program aims directly at enhancing the user's enjoyment and education to be derived from the park visit.

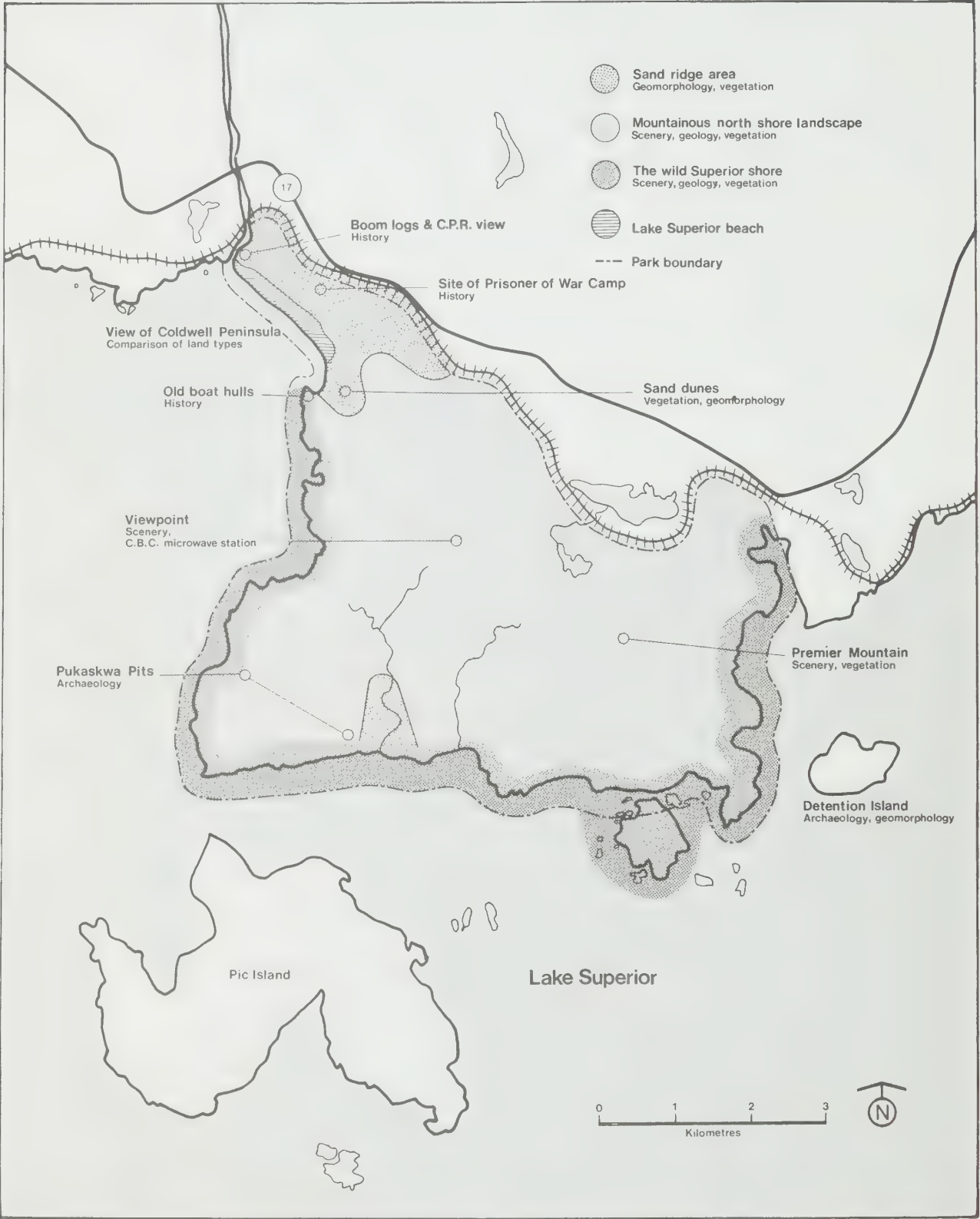
In conjunction with the assessment of interpretive potential, themes have been identified which would communicate the significance of a given natural or cultural resource to the park user. The interpretive theme is the essential element of the interpretive program. The expression of the theme is instrumental in interpreting the concept.

Interpretive resources and their associated themes have been classified below as either primary or secondary. Primary interpretive resources, having relatively high interpretive value, may be significant on a provincial or national rather than a regional or local scale. They may be a rare rather than a common occurrence or dramatic or impressive rather than ordinary. Primary interpretive resources may constitute a quality representation of some broader resource classification or may be highly instructional because of their graphic illustration of some natural process. At Neys, the following three potential primary interpretive themes were identified: the story of the ruggedly scenic landscape of the north shore as it exists in Neys; the formation and unique geological composition of the Port Coldwell Alkalic Complex and the history of woodland caribou associated with the park.

The rugged beauty of the Canadian shore of Lake Superior is a sufficiently impressive scenic feature to be of national significance. The mountainous topography of this discrete physiographic unit is very well represented in Neys, where steep rock hills rise over 250 m above the surface of Lake Superior and offer excellent views of a dramatic union of land and lake. The hills of the north shore have been influenced by the hard erosion-resistant rocks composing them, the syncline which has caused the formation of the basin of Lake Superior and the elevation of the land along the edge of the basin. But a purely scientific explanation does not convey the high natural aesthetic values of the area. Visitors to the north shore are immediately impressed by the grandeur of the landscape and only secondarily by a technical explanation of the landscape. Perhaps the Canadian artists who formed the well-known Group of Seven association of painters experienced the north shore country ideally. Their feelings for the wild, dramatic beauty are expressed in painting after painting. An interpretive program in Neys Provincial Park could intensify and build on the expansive aesthetic perception which virtually all park visitors form of the Neys area.

Figure 10

Interpretive Potential



The second potential primary theme is the unique geological foundation of the park. The park is situated on a circular geological structure called the Port Coldwell Alkalic Complex. Of the relatively few alkalic intrusions known in the province, only the Port Coldwell complex is capable of being interpreted to relatively large numbers of people. Other known complexes are either not visible on the surface or are simply inaccessible to most people. The bedrock of Neys is composed of a rare example of a specific type of volcanic stock and a good example of a volcanic intrusion.

The third potential primary theme is the overlapping of the ranges of the white-tailed deer, moose and woodland caribou within the park. This unusual conjunction allows for the interpretation of the differences and similarities in behaviour and habitat of each animal, the influence of one animal on the others and the way each has responded to the influence of man. Important ecological concepts, such as the adaptation of an animal to its environment and the way closely related species of animals compete with each other for the resources of their mutual environment, are well illustrated by these animals.

Man's influence on these animals is of major importance. The number of caribou has sharply decreased across the northern portions of the province during the last 100 years, while the numbers of deer and moose have risen. Caribou are adapted to living in a mature boreal forest environment, while moose and deer require younger forest types. Lumbering, fire and forest insect epidemics reduce the amount of mature forests available to caribou. This range alteration leads to increases in the numbers of moose and deer and, consequently, predatory wolves and humans. Caribou herds are apparently more susceptible to extirpation by hunters than the more widely dispersed populations of moose and deer. Thus, caribou are no longer found in the most man-altered parts of northwestern Ontario. Generally, they are being pushed northwards as logging roads and hunters extend their influence northwards.

In that part of Ontario adjacent to the northeastern corner of Lake Superior, a few remnant herds of caribou have survived. In Neys and its vicinity, caribou have survived because of the protection offered by Pic Island and the fact that the low timber value of the park's forest has left it unlogged and the relative protection offered by the rugged topography of the north shore of Lake Superior. Neys is, at present, the only opportunity within the Ontario Provincial Parks System to interpret this story of the influence of man on woodland caribou.

In addition, four potential secondary interpretive themes were identified. These themes relate to park resources of somewhat lower interpretive potential than those related to the preceding major themes. Consequently, these themes might interpret resources having regional or local significance only with a lower educational value and less dramatic appeal. Because they are less tangible or less accessible, they are more difficult to interpret.

The first of these secondary themes is the restrictive effect of the rugged terrain of the north shore landscape on man both in the park and along the entire north shore of Lake Superior. The fact that it is difficult to overlay a transportation system on such a landscape is evident from the impressive railroad and highway bridges over the Little Pic River and the rock cuts on both the highway and the C.P.R. line. It is impossible to farm this land, and it is difficult to build on it, log it, hunt on it or even walk on it. Features in the park that could aid in the interpretation of the story of the relationship between man and the land include the boom logs, the disintegrating boat hulls, and the prisoner of war camp.

A second secondary theme is the presence of old sand dunes and sand beach ridges that have been stabilized to various degrees by vegetation cover. These areas are of unusual beauty and exceptional interest. The ground cover of bearberry, blueberry and lichens forms a fragile carpet over the rolling surface of the ridges. However, it is the successional pattern of occupation and stabilization of the bare sand dunes by vegetation that constitutes the most interesting interpretive story in these areas. Only several species of plants acting in concert with one another can overcome the drastic physical and chemical restrictions to plant growth by shifting sterile sands. This interdependence of plants is the key interpretive idea illustrated by the sand ridges.

The next secondary interpretive theme, based upon several separate components, is the story of the variation of plant communities in the park resulting from the variety of growing conditions presented by variations in topography and the presence of Lake Superior. Interesting cold climate plants grow in a narrow band within a few kilometres of the shore of Lake Superior because of the chilled air immediately adjacent to the lake. Stunted spruce and birch grow on the peaks of the steep rock hills of the park. Many species of brightly-coloured lichens flourish on the wave-washed cobble beaches and the expanses of bare bedrock on the steep slopes of the park, while the unusual lichen-heath vegetation grows on the sand ridges of the park.

A fourth secondary theme is the presence of archaeological sites in the park which can help illustrate the relationship between prehistoric man and the parkland. All the evidence of prehistoric man in the park is associated with either the present shoreline of Lake Superior or previous raised glacial lakeshores. Four summer campsites of the Ojibwa, who lived in the park 1,000 years ago, are located on the sand ridges of the northwest corner of the park. This is evidence of a traditional seasonal movement pattern among the Ojibwa bands, who moved inland away from major bodies of water during the fall and winters and formed family hunting groups. During the spring and summer, they moved back to the shores of major lakes, at which time families amalgamated into larger bands for communal berry-picking and fishing activities.

Other major archaeological sites in the park include groups of rock structures called Pukaskwa Pits. These enigmatic structures are located on a 4,000-year-old raised cobble beach of Lake Superior. Their function is unknown, although many suggestions as to their purpose have been forwarded by archaeologists. They may have served as vision pits for some unknown religious rite performed by some presently unknown prehistoric Indian culture. The combination of the more familiar type of campsite and the mysterious Pukaskwa Pits in one interpretive story adds two extra dimensions to the interpretive opportunity. These are the dimensions of time and the probably great differences in the nature of prehistoric man's camping activities on each site as compared with today's activities.

Recreational Use and Demand

Park Use

This section examines the levels and types of use in Neys Provincial Park. Since the incidence of camping dominates that of day-use, emphasis is placed on the characteristics of campers, their habits and preferences. Factual information was obtained from a variety of sources, including annual park statistics, the experiences of park staff and a questionnaire administered to campers during the summer of 1974.

In recent years, visitation at Neys has increased to almost 30,000 (Table 4). During the 1976 operating season, the total reached approximately 29,500, 25,000 campers and 4,500 day-users (Table 4). Because of the high percentage of tourist traffic on Trans Canada Highway (Highway 17), Neys provides a convenient and highly attractive overnight stop. A low demand for day-use opportunities is generated by small local populations faced with a number of alternative destinations.

Table 4: Park Visitation

	<u>1974</u>	<u>1975</u>	<u>1976</u>
Campers	23,600	25,100	25,000
Camper Days	27,400	32,000	32,000
Day-users	<u>3,200</u>	<u>4,100</u>	<u>4,500</u>
Total Visitation	26,800	29,200	29,500

Source: Ontario Provincial Parks Statistics, 1974-76.

Campers

Of the 25,000 campers visiting Neys annually, approximately 65 percent are Canadians, 45 percent of which are from Ontario, and 36 percent are Americans (Neys Camper Survey, 1974). Of the total, only 10 percent originate in Northern Ontario and less than five percent in local towns and villages (i.e. Marathon, Terrace Bay and Schreiber). The majority of the campers utilize Neys as an overnight stop, arriving between 3:00 p.m. and 8:00 p.m. and remaining in the park from 12 to 20 hours. Reflecting the park's role as a stopover campground, the average length of stay (1.25 nights) over the past several years has remained relatively stable.

Respondents to the 1974 camper survey most frequently listed convenience of location as the reason for camping at the park. The

second most frequently mentioned reason was the attraction of Lake Superior (Table 5). The most popular activity listed by campers was walking and exploring on the beach (83 percent), followed closely by relaxing (73 percent) (Table 6). Viewing, photography, walks on nature trails, swimming and wading were also listed as popular activities, while bicycling, canoeing, berry-picking, motorboating and attending amphitheatre programs were the least popular. Forty-one percent of the campers indicated walking and exploring on the beach as the activity taking up most of their leisure time, 35 percent indicated relaxing, and 11 percent indicated nature trail walking as consuming most of their leisure time.

Table 5: Reasons for Visiting Neys Provincial Park

<u>Reasons</u>	<u>Percentage</u>
Convenient Stopover	41
Recommended Stop	14
Lake Superior	21
Good Facilities	16
Provincial Park	13
Impressed by Previous Stay	3
Other	6

Source: Camper Survey, 1974.

Table 6: Activities Participated in at Neys Provincial Park

	<u>Percentage of Respondents Participating in Activities</u>
Walking/Exploring on Beach	83
Relaxing	73
Viewing/Photographing Plants, etc.	36
Walks on Self-Guided Trails	34
Visiting Viewpoints, Lookouts	31
Swimming, Wading	30
Casual Play	16
Fishing	11
Bicycling	6
Canoeing	4
Berry-picking	3
Other	2
Motorboating	1
Visiting Amphitheatre	1
Visiting Marathon	1

Source: Camper Survey, 1974.

The overwhelming majority of campers (98 percent) expressed satisfaction with their visit to Neys. In general, campers felt park facilities and activities should include historical and/or natural environment displays, electrical hookups, an amphitheatre, bicycle pathways, wilderness walk-in campsites, children's natural science workshops, showers, overnight hiking trails and a resident naturalist (Table 7). Of the facilities and activities offered in the park, campers thought concession stands, snowmobiling, controlled hunting (fall), tennis and trail-biking should be excluded. With regard to the management orientation of the park, 80 percent of the respondents wanted the park to remain as it is, while 11 percent wanted the park to be more recreation-oriented, and 8 percent wanted the park to be more nature-oriented.

Table 7: Opinion of Facilities, Opportunities and Management Practices in Neys Provincial Park

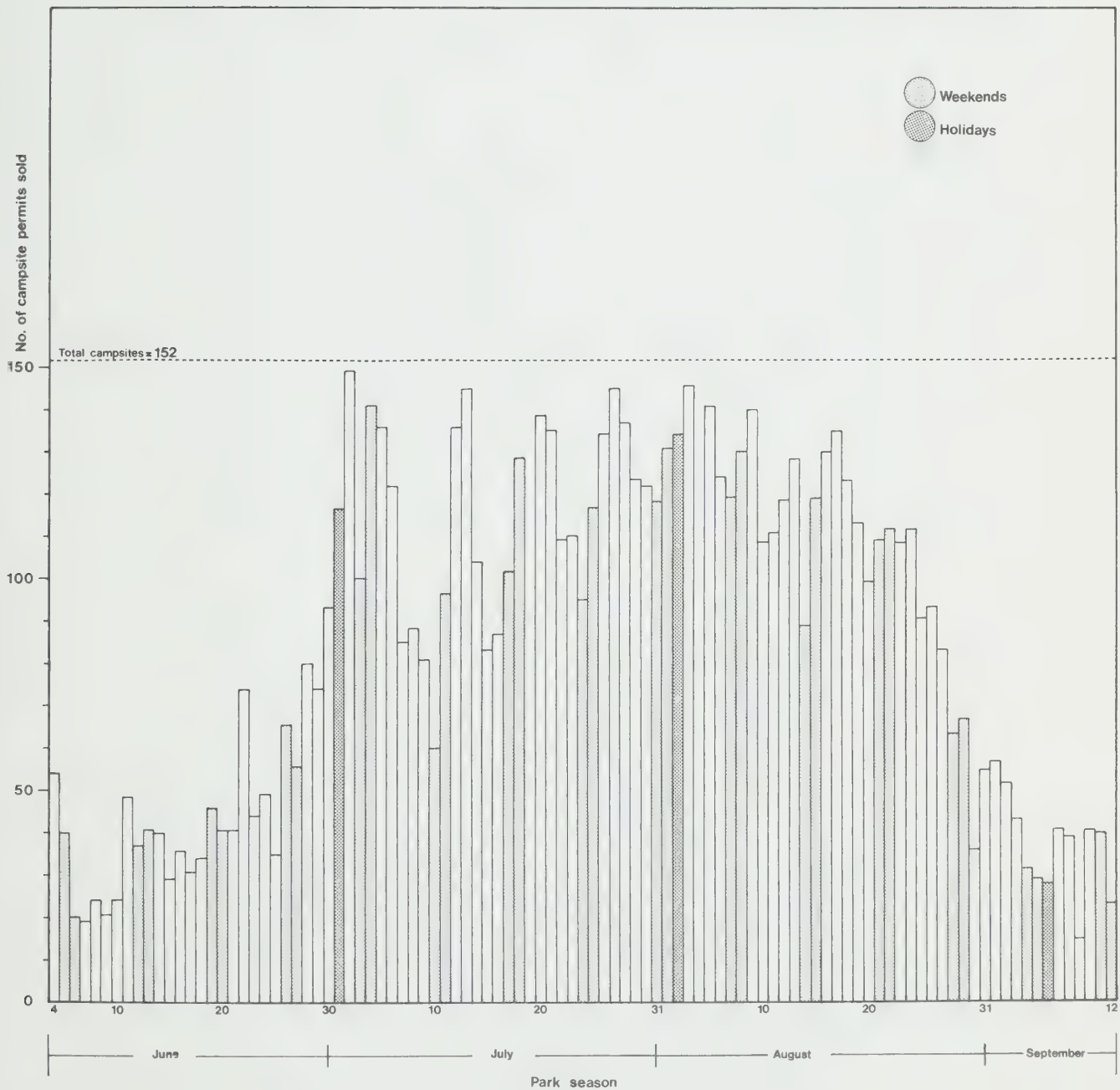
	Should Be Present (Percentage)	No Opinion (Percentage)	Should Not Be Present (Percentage)
Historical, Natural Environment			
Displays	81	15	4
Concession Stands	13	9	78
Snowmobiling	11	30	59
Electrical Hookups	61	27	12
Amphitheatre Program	72	24	4
Bicycle Pathways and Trails	70	18	11
Horseback Riding	31	36	33
Adventure Playground	40	39	21
Wilderness Walk-in Campsites	76	20	4
Children's Natural Science Workshops	58	31	12
Controlled Hunting (Fall)	17	23	59
Tennis	19	29	52
Showers	93	5	1
Overnight Hiking Trails	70	26	4
Trail-Biking	22	19	59
Resident Naturalist on Duty	64	29	6

Source: Camper Survey, 1974.

Eighty-three percent of the annual camper visitation occurs in July and August. During these months, the park campground experiences an average occupancy rate of approximately 80 percent in July and August (Figure 11). The campground is used to capacity or near capacity on several peak days each month.

Figure 11

1976 Campground Occupancy



Source - Provincial Parks Statistics

Day-users

Day-users are predominately local residents, mostly from the Marathon area; only a few day-users are tourists. Day-users visiting Neys tend to be members of family groups participating in picnicking, relaxing, walking on the beach, swimming or wading.

Sundays generally receive the highest visitation from this group, and weekdays receive the lowest (Figure 12). In 1976, peak Sunday visitation exceeded 50 parties on only one occasion. Significant increases in day-use visitation are not anticipated in the near future. Day-users have expressed no general dissatisfaction with the opportunities provided at Neys.

The Park in Context

Neys is situated in an important Ontario recreational environment which is unified by the adjacent northern waters and spectacularly scenic shoreline of Lake Superior and by outstanding recreational corridors, both existing and potential, which include highways, railroads, trails and water (Figure 13). The recreational importance of Lake Superior's northern shoreline is gaining recognition, as is indicated by recent Government of Ontario planning programs (e.g. Design for Development: Phase 2, Northwestern Ontario; the Ontario Strategic Land Use Plan; the North Shore Lake Superior Recreation Study and master planning exercises currently underway in Sibley Provincial Park, Lake Superior Provincial Park and Neys Provincial Park). The growth in recognition is also reflected in the development of a national park (i.e. Pukaskwa), municipal interest (i.e. marina projects in Thunder Bay and Sault Ste. Marie) and private investments (e.g. the Rossport Marina and various commercial developments along the highway corridor).

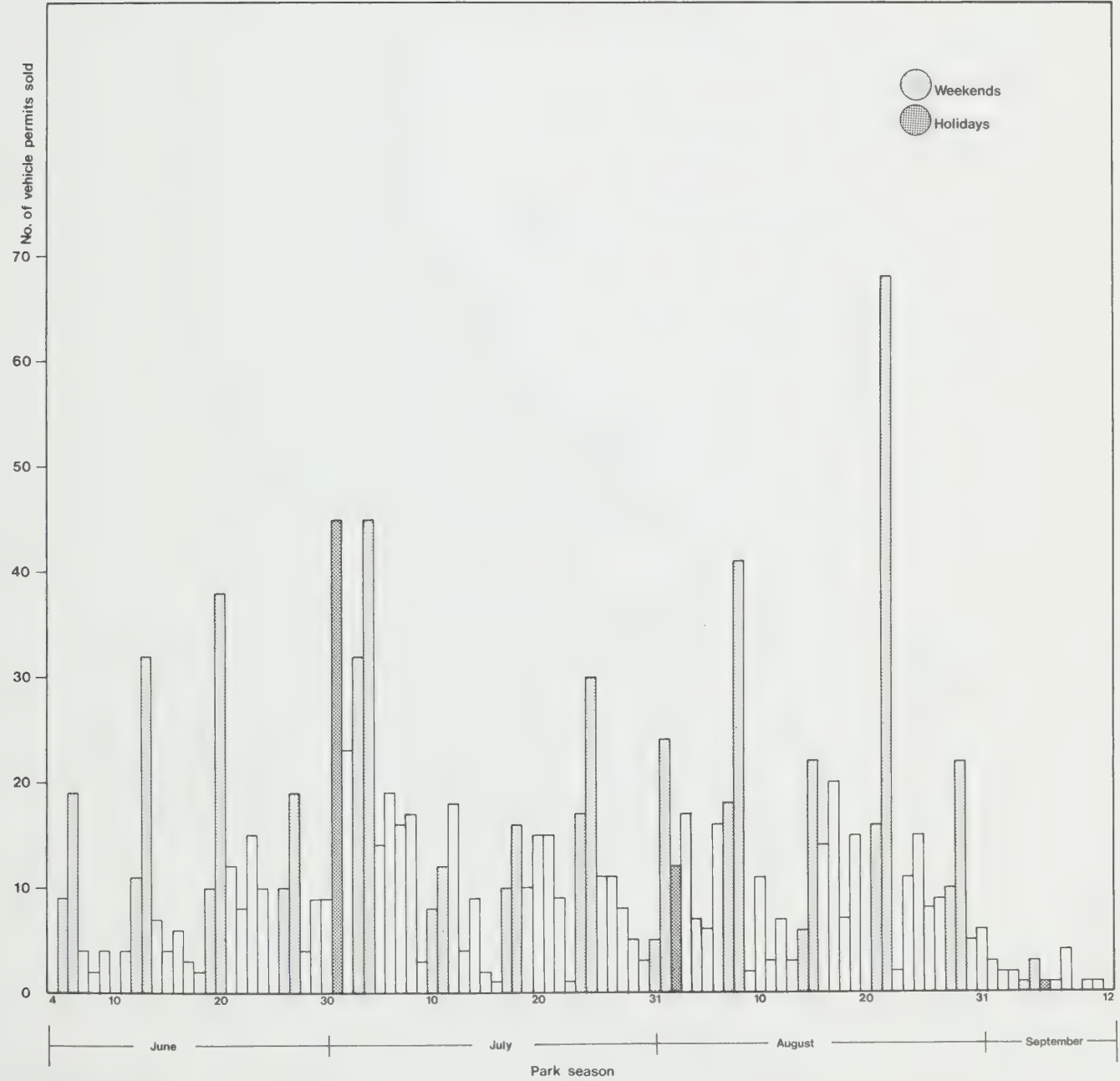
On the north shore, established parks tend to be oriented toward the highway corridor (the principal source of park users) or to the shoreline (the corridors outstanding recreational resource). Major parks either incorporate truly outstanding shoreline segments (e.g. Sibley Provincial Park) or are situated where the highway and the shoreline come together (e.g. Neys Provincial Park).

Of the corridor's four natural environment parks, three--Sibley, Neys and Lake Superior--are situated on the lake and incorporate truly outstanding segments of Lake Superior's shoreline. Pukaskwa National Park represents a similar resource. In each case, although moderately intensive development will be permitted, the natural aspects of these parks will be emphasized. They are noted for their rugged scenery provided by the shoreline and their potential to supply a wide variety of extensive recreational opportunities. These parks form nodes of outstanding opportunities for viewing, photography, nature study, hiking and extensive camping; an opportunity package for which the north shore, in general, possesses great potential.

In addition to incorporating a spectacular segment of shoreline, Neys is also highly accessible to car-tourists travelling the Lake

Figure 12

1976 Day-use Visitation



Superior Circle Route (Figure 13). Consequently, Neys serves as a popular stopover for campers as indicated by its campground occupancy rate which exceeds that of nearby corridor parks offering similar facilities but situated inland from Lake Superior (Table 8).

Table 8: Percentage July-August Park Occupancies

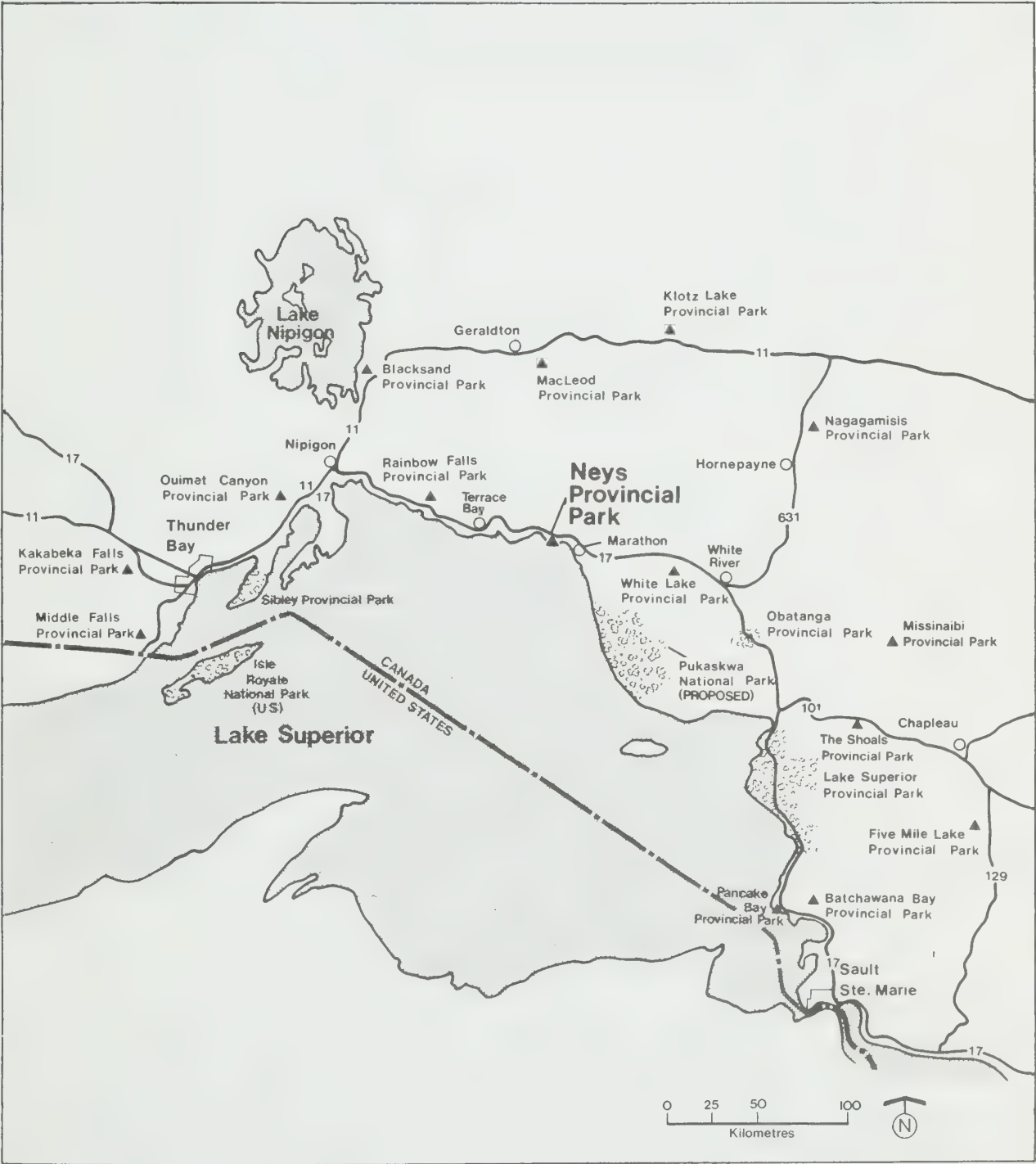
<u>Name of Park</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Neys	67	76	73	85	83
Rainbow Falls	47	42	32	49	53
White Lake	70	65	64	65	73
Obatanga	50	56	60	70	78

Source: Ontario Provincial Parks Statistics, 1972-76,

Currently, developments underway in interior corridor parks adjacent to Neys (i.e. parks located on Highway 17, but not on Lake Superior)--Rainbow Falls and White Lake, approximately one hour's drive to the west and east, respectively--will result in improved facilities and an increase in effective campsite supply along Highway 17. Because Neys is currently utilized to capacity on a number of nights throughout the season, this external supply increase should ease the pressure currently being exerted by car campers. In addition, the development of camping opportunities at Pukaskwa National Park and at nearby private locations will add to the corridor's campsite supply.

Local populations are too small (Marathon-2,400, Terrace Bay-1,800, Schreiber-2,000 and, except for Marathon, too distant from the park to generate significant demands for day-use opportunities. As an alternative to Neys, the surrounding Crown land provides a wide variety of extensive recreational opportunities free of charge. In addition, the availability of intervening opportunities and the cold water of Lake Superior combine to result in relatively low incidences of local use. Consequently, because of the truly outstanding resource base and the limited demands of local residents, Neys Provincial Park has a regional or provincial rather than a local user orientation.

Figure 13
Regional Setting



Park Policy

The Park Goal

The goal is to preserve the natural character of the park's resource base while providing recreational opportunities, ranging from the extensive to the moderately intensive, in a natural environment representative of the north shore of Lake Superior.

Statement Explaining the Goal

The preservation of the park's natural character is the overriding consideration in the management of Neys. As a result, the resource management program will emphasize the preservation of the currently undeveloped sectors of the park (i.e. the Coldwell Peninsula) in a near-natural state and the maintenance of the natural integrity of the resource base where use and development have occurred or will occur. Although incompatible with the goal of preserving natural features and processes, insect infestations, disease and fire will be controlled in recognition of their potentially destructive impact. Commercial resource extraction will not be permitted.

Recreational uses and their associated developments must be compatible with the preservational objective. Consequently, acceptable user activities will vary from the extensive to moderately intensive activities only. To facilitate this, motorized service and personal vehicles will be permitted only on park roads. Other vehicles used for recreational purposes will not be permitted. Recreational boating activities on Lake Superior are also permissible. However, hunting will be prohibited.

In stressing Neys as part of Lake Superior's northern shoreline, the Coldwell Peninsula, protruding southward into Lake Superior, becomes the park's single-most outstanding resource. Here, where potentials for extensive recreation are high, related opportunities will be provided thus diversifying park opportunities through the addition of an activity package of truly outstanding quality. The provision of such extensive recreational opportunities will be constrained by the overriding objective of preserving the wild and undeveloped character of the peninsula.

The association of the parkland with Lake Superior and the north shore's rugged topography enhance the moderately intensive recreational opportunities presently established adjacent to Neys beach in the northwestern sector of the park. Here the pounding of breakers and the chill of onshore winds bring Lake Superior into intimate contact with the camper and the day-user. Despite relatively high current use levels, no major expansion of this sector's facilities will be undertaken in the short term because of the inherent physical limitations of the site and because of the improvements in the level of service presently under development in adjacent parks on the Highway 17 corridor. The question of facility expansion may be considered

at each of the successive five-year reviews of this plan, but only in response to public pressures and the unavailability of satisfactory corridor alternatives and given a detailed investigation of site capabilities has been done prior to reconsidering. Day-use facilities at existing sites will be expanded to capacity in response to demonstrated demand. However, the degree of expansion will be limited by physical site constraints. Although the status quo for the provision of camping and picnicking opportunities will essentially be maintained, the interpretive and educational components of the park's visitor services program will be substantially upgraded. Since by far the majority of park users are stopover car campers, a particular challenge of the program will be to provide a meaningful experience for the short-stay user.

Although the park boundary parallels the shoreline some 200 m offshore, specific management of Lake Superior's resources is not proposed at this point. This delineation allows for the control of undesirable activity that may occur adjacent to the park's shoreline.

Visitor Services Program

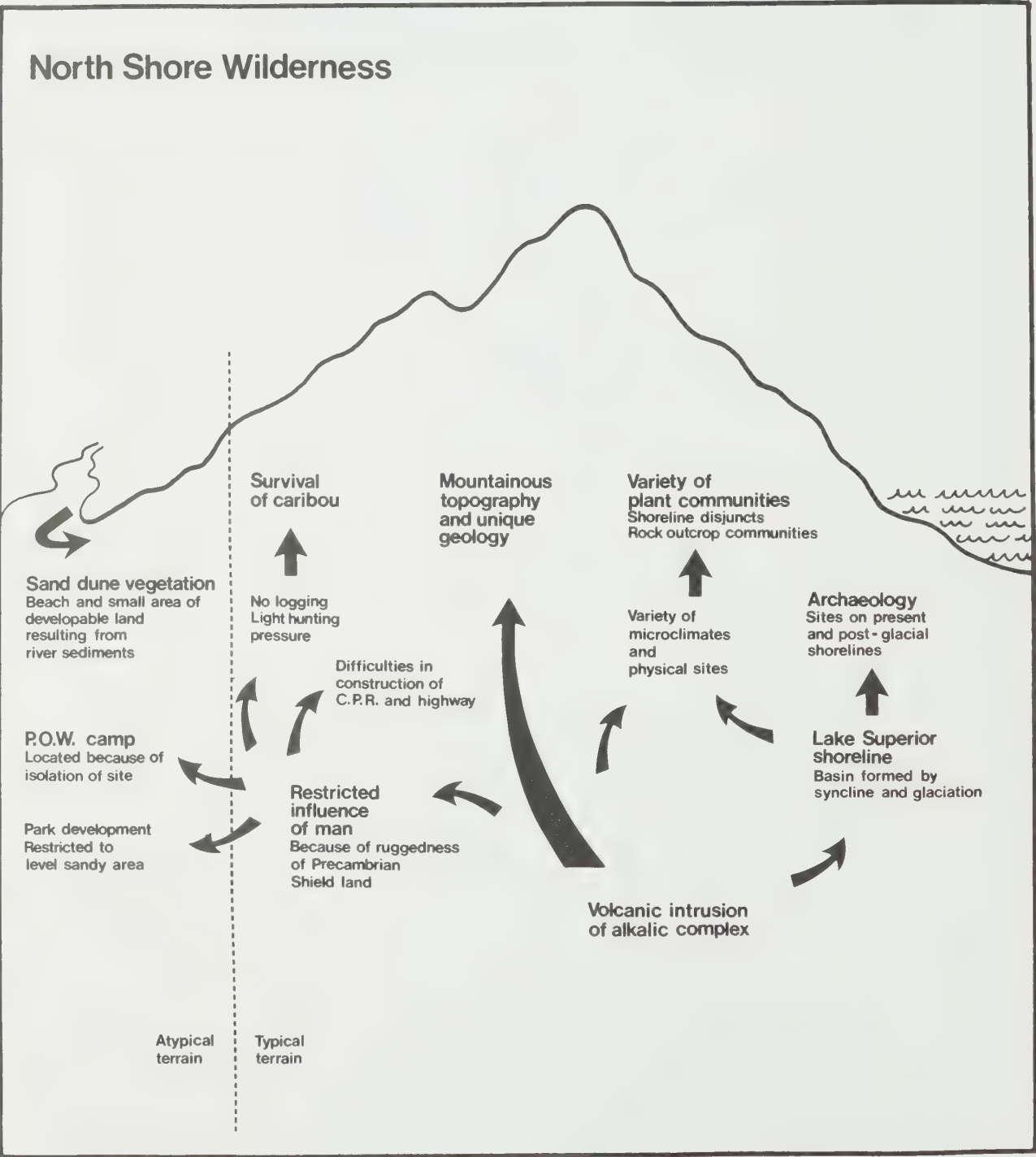
The visitor services program is comprised of four components: interpretation, education, recreation and communication. The Neys program will emphasize the interpretation of the park's significant biophysical and cultural resources. Educational programming will occur only to the limited extent required by local demand and will function essentially as an extension of the interpretive program. A recreation program, although decidedly secondary, will be developed in response to the recreational function of the park; however, care will be taken to ensure that this program is compatible with the park's natural environment orientation. Finally, communications will be developed to the extent necessary to provide users with information regarding the park and the surrounding region.

The park's overriding interpretive concept will focus on the rugged beauty of Superior's north shore of which Neys provides an outstanding example (Figure 14). This concept will be conveyed to the user through information explaining the evolution of the north shore topography and its biological and cultural ramifications. However, the objective will be to provide much more than mere technical explanations. Information will be presented in such a way as to intensify the feeling of grandeur and wildness which is so readily perceivable in the landscape which combines the great inland sea with the mountainous terrain so characteristic of its shoreline. Therefore, the interpretive program will add to or intensify the basic experiential mood of a visit to Neys, that mood being one of an expansive aesthetic pleasure aroused by the spectacular north shore environment.

Complementing the predominant interpretive concept which focuses on the north shore topography, individual interpretive themes will be employed to present to the user specific bio-physical and cultural stories as components of the north shore environment. Most important among these will be the unique geology of the Port Coldwell Alkaline Complex as it contributes to the north shore topography and the presence

Figure 14

Interpretive Conceptual Scheme



of a herd of woodland caribou which continues to survive in the area because of the restricted influence of man. Additional supporting themes include the following: the restricted influence of man, sand ridge vegetation, the variety in vegetation and prehistoric man on the lake shore.

Two basic approaches will be employed in communicating previously mentioned themes to the park user. The on-site interpretive approach will emphasize the advantages of the direct contact of the user with the resource. Therefore, optimal locations for interpreting major park stories in terms of the resource and from the standpoint of the user will be identified as target points. Facilities provided in conjunction with target points will be a function of the visitor services program requirements based on the resource, the user and relevant zone management guidelines (Figure 15).

The second interpretive approach will employ a central visitor services centre. This centre will focus on those themes that are intangible and not easily interpreted on-site. A second important function of the centre will be the interpretation of major park themes, regardless of their on-site interpretability, to park users whose relatively short length of stay effectively precludes access to resource-based target points. The visitor centre will contain appropriate facilities for audio-visual presentations, displays, paintings, photographs, artifacts and visitor services program development and management.

With regard to the recreation component of the visitor services program, limited opportunities will be provided but only in response to user demand and to the extent that the interpretive focus of the program at large is not compromised. Generally, recreational programs will be compatible with the park's natural environmental classification and will include such activities and facilities as orienteering and adventure play areas. A second principle of recreation programming at Neys will have an emphasis on children.

The communications component of the visitor services program will orient visitors to the park and the recreational opportunities available along Lake Superior's north shore corridor (Figure 16). Additional messages will explain the infected red pine plantation (*scleroderriss lagerbergii*), the potential hazards to swimming and boating on Lake Superior and the C.B.C. tower.

Figure 15

Interpretive Target Points

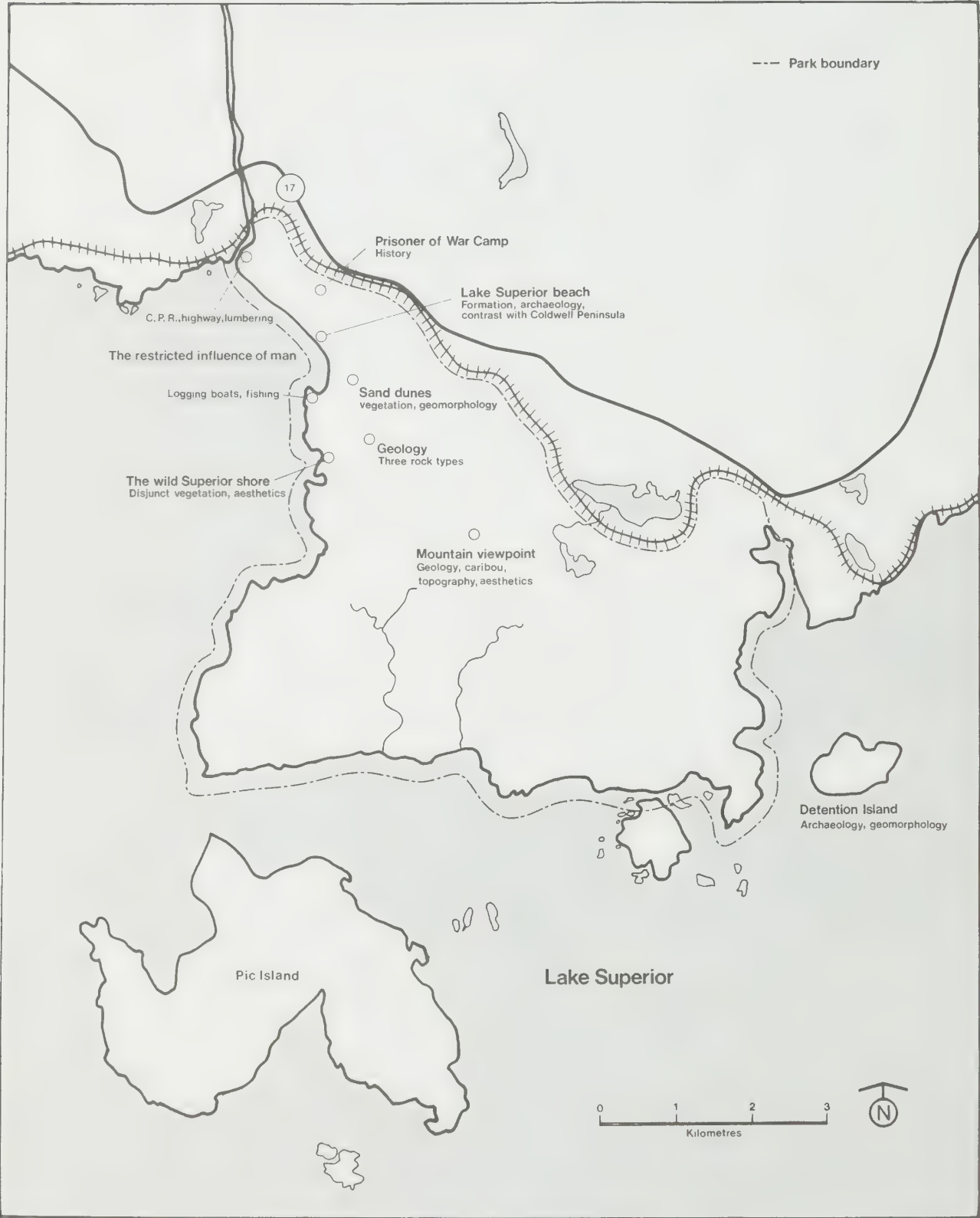
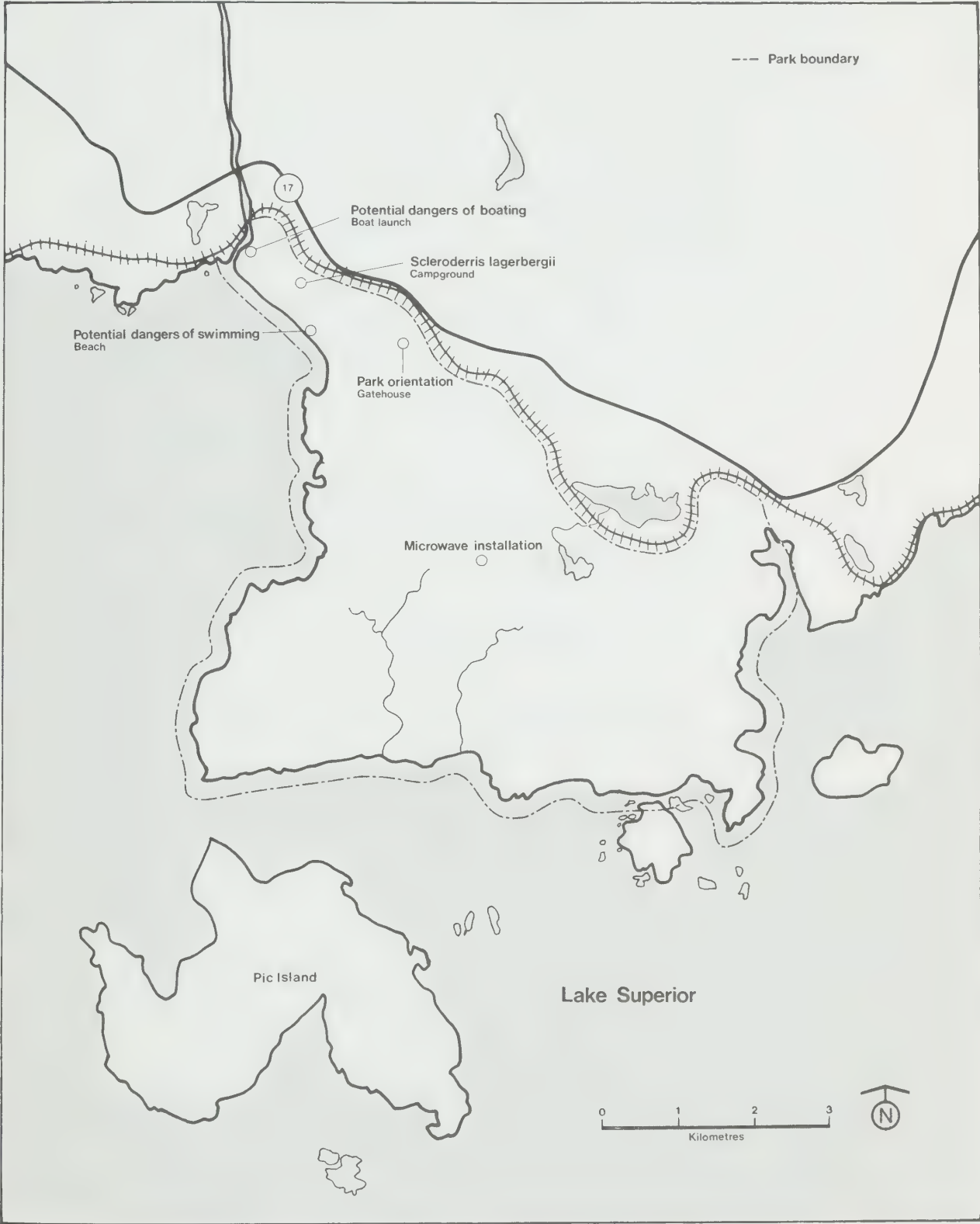


Figure 16

Communications Target Points



Classification and Zoning

Classification

Neys will be classified as a natural environment park and managed accordingly. Its resources provide a quality base for recreational uses ranging from the moderately intensive to the extensive. In addition, except for its northwestern corner, the park has remained undeveloped and has been only marginally utilized. Consequently, provincially significant resources have been left in a relatively undisturbed and natural state. Primarily because of the park's peninsular shape, adjacent land-uses and developments, except for the railroad abutting its northern boundary and the nearby Highway 17, have had a negligible impact upon the park. The Coldwell Peninsula is truly a wild and rugged no-man's land.

Zoning

Within the natural environment classification, Neys will be managed under three specific zonal designations, a wilderness zone (2,960 ha), a nature reserve zone (25 ha) and a development zone (275 ha) (Figure 17a and Figure 17b).

Although simplistic, this arrangement of zones provides for a desirable degree of variation in approaches to resource management and to the provision of user opportunities, associated programs and facilities throughout the park. The park's two major zones, the wilderness zone and the development zone, reflect a marked internal division of the park's physiography and corresponding variation in recreational potential and established activities. The remaining zone, the nature reserve, provides for the protection of a fragile and educationally important dune and lichen woodland formation situated between the two dominant zones.

Wilderness Zone

The wilderness zone, encompassing the Coldwell Peninsula, will dominate the park. In so doing it will preserve the biophysical resources of a truly spectacular segment of the north shore of Lake Superior and will provide quality opportunities for extensive recreation. Biophysical resources of particular importance incorporated in the wilderness zone include the following: the representation of a dramatically scenic segment of Lake Superior shoreline, the Port Coldwell Alkaline Complex, the occurrence of caribou and their supporting habitat, a lichen heath beach ridge association, alpine vegetation on wind-swept mountain tops and arctic-alpine disjunct flora on exposed rock shorelines.

Resource Management

As a wilderness zone, ideally resource management within the Coldwell Peninsula would permit natural forces to run their course. However, because of the relatively small size of the zone (i.e. in the context of a wilderness area), the specific natural values which it incorporates and the recreational use which it will support, potentially destructive forces such as insect infestations, disease and fire will be suppressed.

The zone's resource management program will have two additional focuses, the specific biophysical resources and the impacts of the extensive recreational uses permitted within its boundaries. In the short term, the most significant facet of the park's resource management program will concentrate on the woodland caribou. The emphasis will be directed toward improving the data base which is presently insufficiently detailed to serve as an adequate basis for management decisions. Improved knowledge of the woodland caribou, which use Neys as part of their broader range, will be used to identify the significance of the park to the preservation of the woodland caribou population. It will also determine the need for caribou management within the park, and it will serve as an invaluable contribution to the park's interpretive program.

Initially, attention will be focused upon the entire range of the caribou population. The emphasis here will be on population size, annual distribution and the role of Neys Provincial Park and associated islands as a part of the range. At this initial phase, a specific effort will be made to draw on the findings of research which is on-going in the area in general, with supplementary field work undertaken only where necessary.

If warranted by the first level of investigation, a more detailed examination of the park and its immediate environs will be undertaken. This level of study would focus on the following: the extent of various types of winter and summer ranges, the present successional trends of the various range types, location and extent of areas with potential to be converted to caribou range through management, the accessibility of range areas to the caribou, the actual utilization of each range type by the caribou and limiting range factors for the existing population.

The outcome of the caribou studies may have ramifications affecting the designation of zones as outlined in this document. Detailed study would indicate whether an active management program is desirable or necessary. It would also identify the areas in which active management should be practised. These specific areas could then be re-zoned appropriately as nature reserves (at the time of the five-year review), thus avoiding the introduction of non-conforming uses or management techniques to a wilderness zone. With the completion of the caribou studies, a comprehensive resource management plan would be prepared for the wilderness zone if required.

A final facet of the zone's resource management program will be to minimize the impact of recreational use. The principle means of

Figure 17a

Master Plan

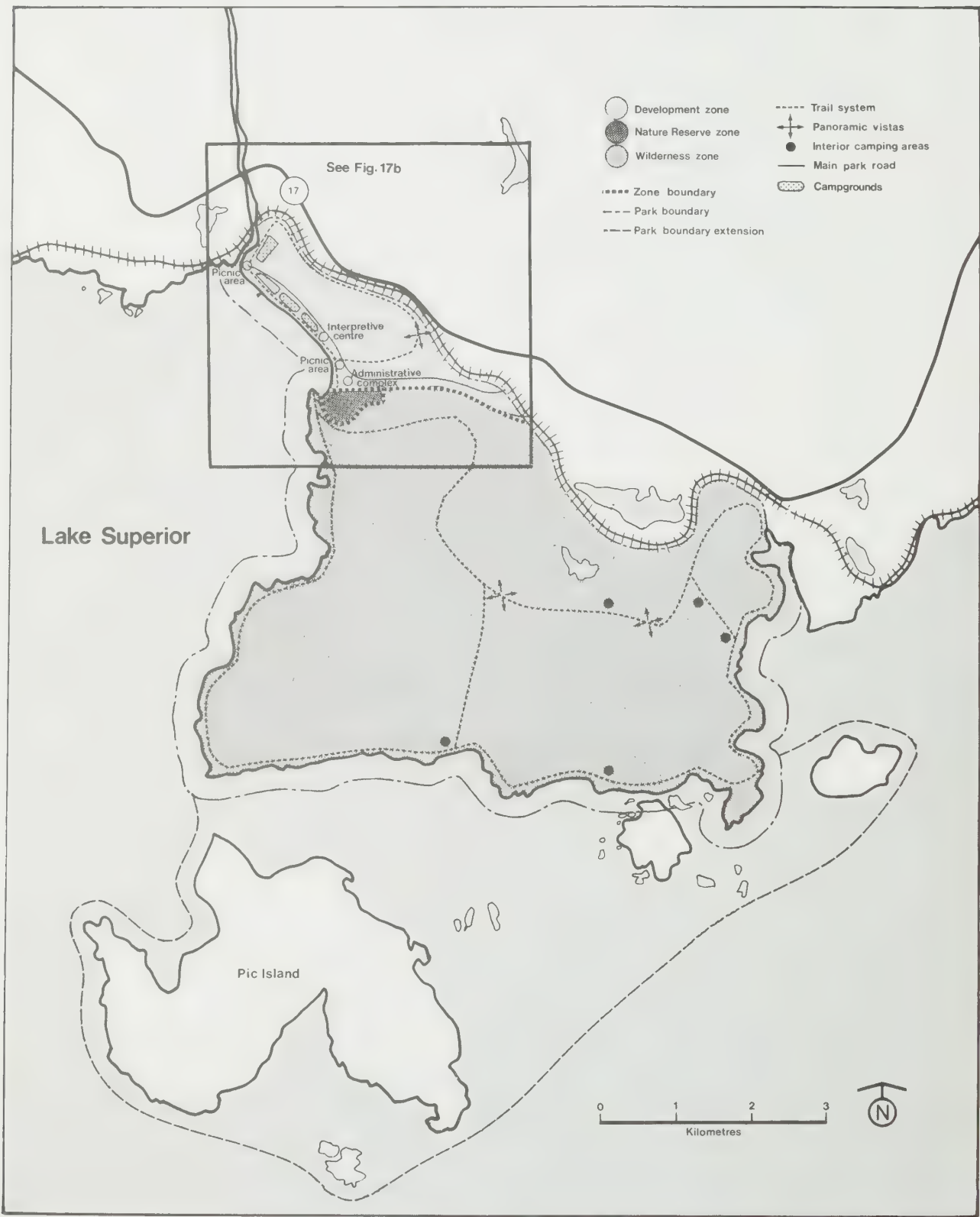
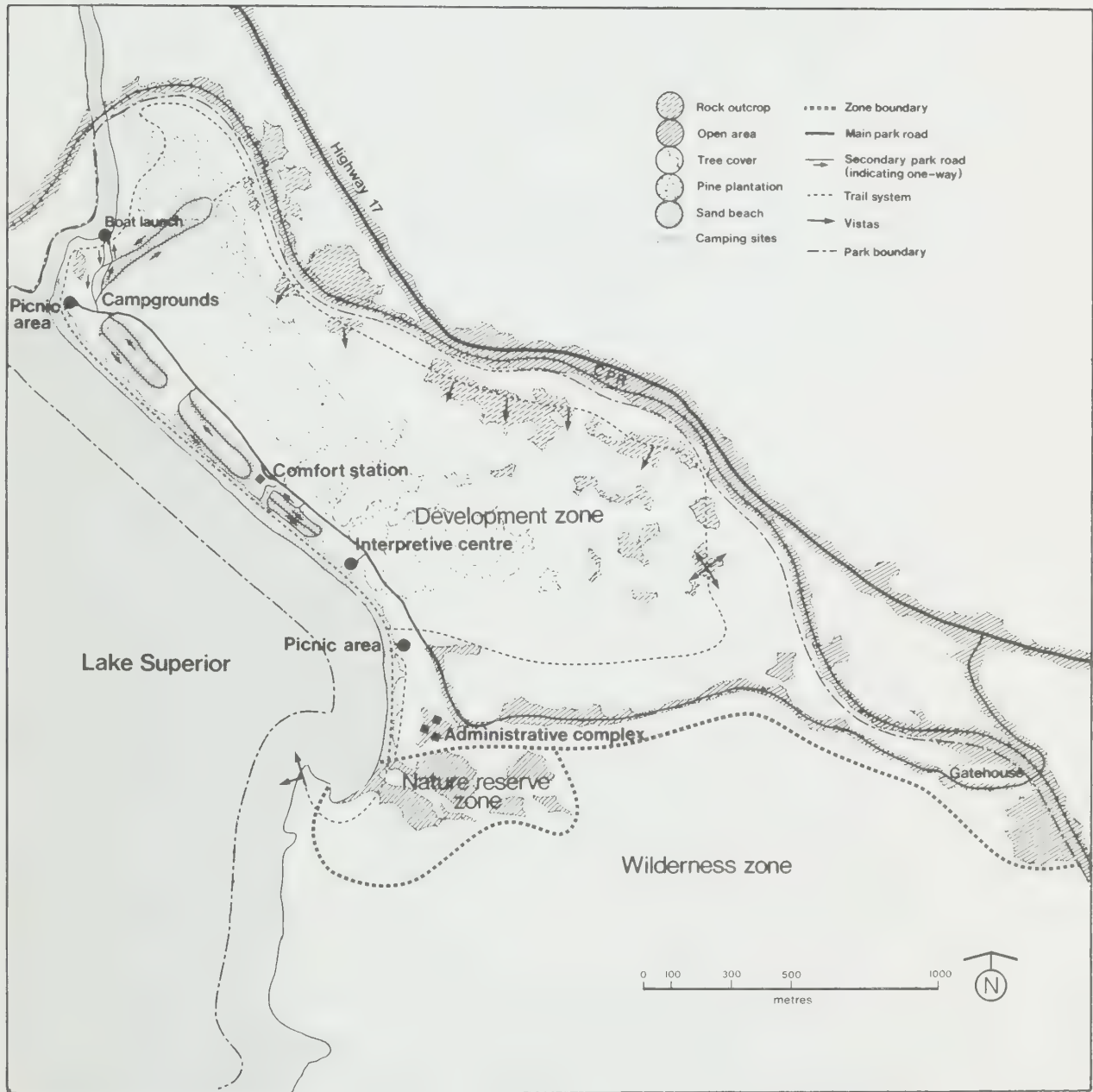


Figure 17b

Master Plan
Northwestern Section



achieving this end will be to limit recreation to the extensive types such as viewing, hiking and primitive camping. In addition, since even these extensive activities and their associated developments can have detrimental environmental impacts, the integrity of the resource will be maintained through careful site design practices.

Recreational Use and Development

The recreational use of the wilderness zone will include hiking, viewing, nature study and related activities. Because of the size of the zone (2,960 ha) and the rugged topography found there, opportunities for primitive camping will be provided in association with the hiking-viewing-nature study activity package.

Because of the intended recreational use of the zone, the only developments will be a primitive trails system and complementary primitive camping area. Major viewpoints and interpretive resource target points will be the primary determinants of the alignment of the trail system. In addition, because of the rugged character of the Coldwell Peninsula, site constraints affecting the development of both trails and camping areas will also be important considerations. In its final form, the system's primary trails will focus on the shoreline and a series of outstanding viewpoints (e.g. Premier Mountain), which trend west to east through the central portions of the zone. Secondary trails will link points of less visual or educational value, provide access to camping areas and interconnect with various nodal points of the primary trail system.

Camping areas will be small, normally containing not more than five secluded primitive campsites. To enable the provision of a high quality experience, facilities will include primitive stone fireplaces, garbage receptacles and primitive privies. These camping areas will be located to efficiently utilize the zone's few areas of relatively high development capability, to achieve a desirable distribution of interior users and to provide a variety of camping alternatives. Detailed analysis will be carried out prior to any development.

Finally, with the designation of the wilderness zone, developments associated with a number of already existing non-conforming uses will be incorporated. Such developments include a microwave tower and its associated access road and hydro line, the park garbage dump and the summer resort situated in the park's northeastern corner. In each case, the developments will be tolerated as non-conforming uses until such time as their removal can be effected.

Nature Reserve Zone

The nature reserve zone, situated immediately north of the eastern end of Neys beach and immediately east of the park's administrative complex, was established to incorporate a fragile area comprised of dune formations and open lichen woodland. In addition, the zone will afford protection to an important cultural resource, and archaeological site (DeIp-3) which represents a major single component Blackduck

occupation. Preliminary excavation indicated the site's potential for producing community pattern data. The site is of key importance in understanding the Terminal Woodland period in this area.

The nature reserve zone, although essentially enclosed within the wilderness zone, has been designated separately to ensure adequate protection of its resources. The nature reserve zone designation recognizes the fragility of these resources, their peripheral location within the wilderness zone and the proximity of adjacent developments. Only scientific, educational and interpretive use will be permitted in association with this zone. Consequently, no additional development will be undertaken. The zone's only existing development, a trail traversing its southern margin, will be retained in its present form, providing access to the zone itself and the western shoreline of the Coldwell Peninsula. The archaeological site will be excavated as soon as funds permit.

Development Zone

User activity and recreational facility development will be concentrated in the development zone, occupying the northwestern corner of the park. This zone is bordered to the north by the railroad and to the west and south by the Little Pic River and Lake Superior shoreline, respectively. To the east, the zone boundary incorporates the park access road and administrative complex and thus abuts the western boundaries of the park's wilderness zone and nature reserve zone (Figure 17b).

Resource Management

Resource management in the development zone will emphasize the maintenance of the integrity of the resource base and the quality of the recreational experience. Specific attention will be directed to the recovery of the infected red pine plantation which occupies a substantial portion of the zone. A second specific area of concern is the zone's generally unstable sand dune and abandoned beach ridge formations. Recognizing the relative fragility of these features, research into relevant natural processes and site capabilities will be encouraged and will serve as a prerequisite to the consideration of any substantial expansion of the existing development area.

With regard to cultural resources, three known archaeological sites (DeIp-2, DeIp-4, DeIp-5) are situated within the development zone. Emphasis will be placed upon the early excavation of the site situated within the bounds of the west picnic area adjacent to the mouth of the Little Pic River (DeIp-2). Any redevelopment will be undertaken subsequent to the excavation or, at least, the archaeological salvage of the specific portion of the site to be affected. Until such time as the excavation is completed, the existing protective sodding and the exclusion of traffic from vulnerable areas will be continued. Artifacts collected will be stored and displayed in the park visitor services centre (subject to the provisions of The Ontario Heritage Act), and information gleaned from the project will be incorporated into the park's interpretive and educational programs. An interpretive display will be erected at the picnic area to commemorate the historic uses of the area.

The remaining sites are situated immediately north of the existing development. Salvaging these sites is of high priority because of their location in deflation hollows and their susceptibility to erosion. This salvage work, as well as a thorough survey of the entire area north of the existing development, will be considered a prerequisite to any redevelopment or expansion of the campground area.

Recreational Use and Development

The development zone will provide opportunities for moderately intensive recreation, with the emphasis on car-camping, interpretation and related activities. Although day-use is currently low and is expected to remain so in the future, opportunities will be provided as demand warrants within the constraints imposed by the resource base.

-Traffic Circulation:

Prior to focusing on individual activity units and associated developments within the zone, an overview of the entire development area must be considered, emphasizing the interrelationships of individual development units and the circulation of user traffic between these units. Thus, existing and potential areas of user congestion or conflict can be identified to ensure that measures are taken to facilitate a more efficient level of integration. At Neys Provincial Park, the solution to the problem of one continuous linear development with access to one development unit being provided through another unit, is to increase the effective separation of individual units. This will be accomplished essentially through the re-alignment of the park's main access road to an alignment lying north of and parallel to the existing park development. Development units (i.e. the car campground loops, the day-use areas, the visitor centre, the comfort station and the administrative complex) will be approached individually from this main access road.

-Car Camping:

In recognition of the present high incidence of use, the park's car campground will remain the most prominent facility; however, in recognition of related site limitations and the current development of camping alternatives nearby, a substantial expansion of the facility will not be undertaken. The re-alignment of the park's main access road will require some degree of campground redevelopment. The central camping unit, through which the main access road now passes directly, will be redeveloped in the form of two individual campground road loops. Each loop will contain approximately 40 sites, and access will be provided individually by the re-aligned main park road. In addition, the development of a visitor services facility will necessitate the closure of the six eastern-most trailer sites.

To compensate partially for the loss of sites resulting from the development of the visitor services centre and partially in response to the considerable camping demand at Neys, a limited number of walk-in campsites may be developed north of the existing campground development. This would occur subsequent to the re-alignment of the park road.

Because of the sensitivity of the resource base, sites would be widely dispersed and situated on an individual basis, and their impacts carefully monitored.

-Day-use:

Although opportunities for swimming, sunbathing and related activities are available along the entire length of Neys Beach, picnicking facilities will be provided at two specific sites, both of which are presently situated adjacent to the beach. At both sites, facilities and services will include picnic tables, fireplaces, water and privies.

The westernmost site, approximately 2 ha in extent, lies immediately east of the mouth of the Little Pic River. Relatively warm adjacent waters, moderated by the inflow of the Little Pic River, make this site the more popular of the two. Because of the sensitivity of the incorporated archaeological resources, the site's popularity and its relatively small size, access and parking facilities will be re-located to the site's northern periphery to free most of the site for picnicking use. The site's available area may be developed to capacity (35 picnic sites, utilizing a density standard of 18 sites per ha), if required by demand. Major expansion of the picnic site will not be undertaken without prior excavation or salvage of the associated archaeological site.

The east picnic area, currently 1.3 ha in extent, may be expanded to approximately 2 ha, thus increasing the capacity of the site to 36 sites (utilizing a density standard of 18 picnic sites per ha). Such expansion will be undertaken only in response to demonstrated demand. As in the west picnic area, expansion and redevelopment designs will seek to remove roadways and parking lots from the heart of the site, freeing most of the area for picnicking use.

-Park Visitor Services:

The development zone will be the focal point of the park visitor services program. The majority of park visitors will be concentrated within the development zone. In addition, even visitors whose ultimate destination is the wilderness zone of the Coldwell Peninsula must first pass through the development zone. Consequently, within the development zone basic orientation messages and interpretive themes can be conveyed most effectively to the park user. Also the zone's resource target points are readily accessible.

The zone's primary visitor services facility will be a visitor centre situated immediately east of the car campground and accessible independently from the re-aligned main park access road. This site is a highly visible one, since all park users, except those utilizing the adjacent eastern day-use area, must pass this site to reach their respective facilities. Additional interpretive and educational facilities within the zone will consist of guided trails and on-site displays.

-Other Recreation Facilities:

A trail system will complement the requirements of the visitor services program discussed above and provide viewing opportunities for the short term park visitor, who cannot utilize the hiking opportunities provided by the Coldwell Peninsula. In addition to the guided nature trails, this system will emphasize the beach and a series of vantage points situated north of the developed area overlooking the beach, the lake and the surrounding countryside. This trail system will also connect with the interior trail system.

Finally, although boating on Lake Superior will not be encouraged, the existing boat launch on the Little Pic River will be retained. A warning to boaters of the potential hazards of using the lake will be provided on-site.

-Administrative and Service Facilities:

The park administrative complex will remain at its present site and will be expanded as required. Primary facilities of the complex will include maintenance facilities, a warehouse, staff quarters and a junior ranger camp.

No concession, with the possible exception of a firewood concession, will be operated within the park.

Park Expansion

With the approval of this plan, serious consideration will be given to the extension of the park boundary to incorporate the off-shore islands, with Pic Island, Detention Island and Foster Island as the primary focus of the expansion. In addition, Allouez Island, the MacDonald Islands, the Sullivan Islands, Black Rock, Slyboots Rock, the McKay Rocks and an unknown number of smaller unnamed associated islands will be included to consolidate the expansion. As is the case with the mainland section of the park, the boundary will parallel the island shoreline 200 m off-shore.

The off-shore islands are closely associated with the Coldwell Peninsula. They assume a particular importance since the most outstanding views from the park's interior trail system focus upon or, at least, include the islands. The quality of these views is perhaps best attested to by the Group of Seven's paintings of the Port Coldwell area, and in particular of Pic Island off Coldwell Peninsula. The preservation of the scenic quality of its adjacent off-shore islands is of the utmost importance to Neys Provincial Park.

Although viewing is perhaps of the greatest importance on a park-wide scale, other features of the islands are also important and lend support to their incorporation within the park boundary. In addition to its quality as a feature landscape, the Pic Island is of particular local importance as the habitat of woodland caribou. Pending the outcome of the research program discussed before (page 52), active management of the caribou population, or of its habitat, may be required. In addition, Detention Island contains an outstanding series of raised cobble beaches and, in association with these abandoned beaches, a number of significant Pukaskwa Pits. Finally, the boundary extension would incorporate all of Foster Island rather than bisecting it as is presently the case.

The off-shore islands would comprise a significant extension of the park's wilderness zone. As with the peninsula, resource preservation would be the dominant management focus. With the formal inclusion of the islands within the park, a detailed resource evaluation would be undertaken and, subsequently, appropriate resource management policies would be developed. These would be incorporated within this master planning document at the time of its five-year review.

Implementation Guidelines

Development Program

The development program is contingent upon adequate prior program development and site and facility design. Therefore, subsequent to the approval of this master plan, but prior to the initiation of major development activity, two intermediate levels of planning (i.e. visitor services planning and site development planning) will be undertaken.

In the case of Neys, an established and operating park, a major development program is not required. The program's most significant developments will include the expansion of the visitor services program and the development of quality extensive recreational opportunities on the Coldwell Peninsula. In addition, recreational opportunities and facilities in the developed sector of the park will be upgraded.

To ensure consistency in master planning, program planning, site and facility design and, ultimately, park operation, the team approach as employed in the master planning process, will be continued through each successive level of planning. The same essential team composition (i.e. master planner, environmental and cultural resources specialists, visitor services planner, site planner, district park supervisor and park superintendent) will be retained; however, at each successive level of planning, the team member most directly involved with the specific planning problem will assume the leadership role.

Visitor Services Program Plan

The visitor services program plan, a preliminary draft of which was prepared in conjunction with this master planning process, will be finalized subsequent to the approval of this document. Using the approved master plan as a guide, the visitor services program will detail the manner in which park interpretive themes and general messages will be presented to park users at defined target points.

Site Planning

Subsequent to the approval of the visitor services program plan, individual site plans will be prepared for defined development units within the park on a priority basis. To achieve an orderly progression of planning through site design and development, site planning projects will be completed a minimum of one fiscal year prior to the initiation of development. Specific site planning requirements apply to the following: the visitor services centre, the park access road re-alignment, the administrative complex and the interior trail system.

Architectural Theme

Within Neys, the opportunity to implement an architectural theme which relates specifically to the park goal and interpretive orientation is substantially limited by the existing facility infrastructure. The minimal amount of additional facility development, except for the visitor services centre and administrative complex required by this master plan, is also a limiting factor.

Within these constraints, park facilities will be compatible with the emphasis this plan places on the park's natural resources. This theme will be reflected in the design of the visitor services centre and the administrative complex, as well as in the on-site displays of the visitor services program.

Park Development Program

The development program, set out in four distinct phases, contains three major development projects: the visitor services centre and associated facilities, the access road re-alignment and the interior trail system (Table 9). Each major development project has been divided into several components, which will be completed sequentially, thus ensuring an orderly progression from planning through development and program or facility operation. Also, individual components of the various major development projects have been combined into phases to form the overall development program. Thus, the implementation of the entire program is integrated vertically through time and horizontally among its major component projects.

Ideally, the development program as outlined in Table 9 should be adhered to without deviation. However, recognizing the potential effects of funding constraints combined with regional and provincial priorities, some deviation from this ideal is inevitable. Where such adjustments must be made, major development components within a given phase of the program will be implemented in tact. Also, the phased progression of components within a major development project will be retained.

Park Capacities

Table 10 outlines the instantaneous and daily capacities that will be reached by the park's recreational facility infrastructure with the full implementation of the park development program discussed above. Calculations yielding instantaneous capacities were based upon space standards applied to development areas and/or an average party size factor applied to the number of existing or potential units within a given development area. Daily capacities were derived by applying a user turnover factor to the instantaneous capacity.

Because of their somewhat arbitrary derivation resulting from the use of space standards and averages, the above capacities should not be applied inflexibly. Instead, refined site specific capacities will be developed through the detailed site analysis and design process. Furthermore, once facilities are in operation, ongoing monitoring by management staff will provide a basis for the further refining the capacity standards. However, despite the inherent limitations

Table 9: Development Program

Phase 1

- Visitor Services
 - Completion of Program Plan
 - Construction of Visitor Services Centre

Phase 2

- Visitor Services
 - Completion of Visitor Services Centre
 - Development Zone, Site Displays, Signs, etc.
- Access Road Re-alignment
 - Site Survey
- Interior Trail System
 - Planning, Layout, Construction Guidelines and Description
 - Site Design Model
- Administrative Complex
 - Completion of Site Plan
- Park Dump
 - Phase Out

Phase 3

- Interior Trail System
 - Initiation of Development
- Road Re-alignment
 - Construction

Phase 4

- Interior Trail System
 - Completion of Development
- Road Re-alignment
 - Paving

Table 10: Park Capacities

	<u>Instantaneous</u>	<u>Daily</u>
Car Camping	490	490
Day-use	90	180
Interior Use	180	180

of the preliminary capacities as contained in this document, the data provides a useful guideline for subsequent and more detailed levels of planning.

Park Management

Management Planning

In addition to the visitor services program plan and the facility and site development plans discussed above, a management plan will be prepared to guide the day-to-day operation of the park. This plan will comply with the format, entitled Park Management/Operating Plan, which is currently being tested across the province. In accordance with this format, the plan will provide detailed staffing and scheduling guidelines for personnel, safety procedures, financial management, park maintenance, facility operations, law enforcement and security, visitor services and resource management.

Staffing

Park staffing requirements and reporting relationships are outlined in Figure 18 and Table 12. When fully staffed, the park will be operated by three permanent staff, supplemented by 14 seasonal employees. Because of the high degree of dependency on seasonal employees the full-time positions are crucial to the effective operation of the park. The park superintendent and visitor services programmer positions are particularly important because of the dramatic re-orientation of the park's programs. However, the importance of the assistant superintendent position cannot be underplayed, because the assistant superintendent will be the only permanent staff member available to assist the superintendent in administrative and operational matters. During the off-season the permanent staff will carry out other duties as assigned by the district manager.

Monitoring

An essential but traditionally neglected phase of the planning process is information feedback. This phase provides basic information regarding the implementation and effectiveness of the policies of the plan. Effective feedback involves monitoring user activities and opinions and park management programs. As a result, a sound basis for necessary adjustments to programs, site and facility designs, specific policies and even the overriding goal and objectives is acquired. Such feedback will form an essential input to the mandatory five-year review of this document.

A variety of mechanisms, many of which are currently being applied, are available to monitor both user activity and park management programs within Neys Provincial Park. With regard to user activity, annually-collected user statistics provide basic information on park visitation. Supplementing this comprehensive and quantitative data base, a park visitor comment sheet records visitor reactions to the park, its facilities and programs.

Figure 18: Organization Chart

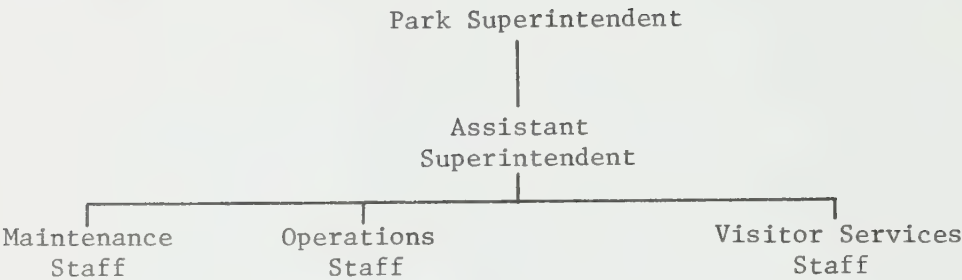


Table 11: Staff Requirements

	<u>Permanent</u>	<u>Seasonal</u>
<u>Administrative</u>		
Park Superintendent	1/2 *	
Assistant Superintendent	1/2 *	
<u>Maintenance and Operations</u>		
Maintenance Staff		
Campsite Maintenance		2
Sanitation		1
Garbage		1
Water Quality		1
Handyman		1
Gate Staff		3
Security		2
Cook		1
<u>Visitor Services</u>		
Visitor Services Programmer	1**	2
Support Staff	—	<u>2</u>
Total	2	16

* Staff carry out other assigned duties during the off-season.

** The Visitor Services Programmer for Neys Provincial Park will also be responsible for the visitor services program at Rainbow Falls Provincial Park as well as other duties assigned by the District Manager.

Special surveys are also available to supplement annually-collected user information. The on-going user survey program, which has the capacity to survey in detail the users of each park in the system approximately every five years, is perhaps foremost among these. The camper survey component of this program will be undertaken at Neys subsequent to the implementation of this master plan and consequently will serve as an important test of its overall effectiveness.

With regard to park management (and plan implementation), two specific monitoring devices currently in operation are of importance. Regional and district audits monitor park management and park visitor services programs. The budgeting format, developed through the 1974 and 1975 provincial park cost studies, will facilitate the monitoring of expenditures within the park, particularly in relation to other parks. This information, compared to the measure of quality provided by the audit system, will provide a concise indication of the effectiveness of the park management program.

Plan Review

As an established Ministry policy, the master plan will be reviewed every five years commencing with the approval of this plan and will be completed as funds and priorities permit.

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Appendix: Environmental Analysis

Landscape unit	Topography and slope	Geomorphology and soils	Drainage	Vegetation cover	Micro-climate
<u>Landscape Unit "A"</u>					
-Neys beach	-gentle bordered by small sandy ridge -several streams emptying into the lake have disrupted the configuration of the beach	-accumulation of fine sands and some silts -deposition occurring as a result of long shore currents and sediments discharged by the Little Pic River -the deposition becomes less coarse to the southeast -washouts occur along the southeast end of the beach as a result of stream discharge	-water level fluctuates -minor ground water seepage at base of beach ridge -major runoff is concentrated within stream courses	-little to no vegetation -some high grass colonization is evident	-extremely exposed to southwesterlies and storm fronts -summer temperatures are generally cool -water temperatures in summer average 10°C -fog conditions are common
Development Implications	-beach ridge is quite steep and unstable -beach slope is very gentle	-very dynamic beach processes, highly unstable	-beach area intermittently inundated by wave action	-lack of vegetation adds to the generally very unstable state of the beach	-the high exposure and cold water temperatures are drawbacks to beach use
Development Capabilities	-	-	-	-	-
Development Rating: 1					
<u>Landscape Unit "B"</u>					
-rock knob landscape, sparsely vegetated	-very rugged hummocky topography -gradients steep to very steep -dissected by several streams -rock fissures are common	-predominantly bedrock outcropping -little to no soil cover except in deep rock fissures and ravines where organic material and silt have accumulated	-overland drainage dominates -a few perched water tables exist -groundwater drainage occurs through the many rock fissures	-sparse distribution of white spruce associated with trembling aspen -green alder and serviceberry dominate the shrub layer -the ground layer is dominated by blueberry in association with common hair grass	-the hummocky summits are very exposed to southwest winds -very dry conditions occur on the higher ground
Development Implications	-rugged terrain, rock fissures and steep inclines present great difficulty to development	-the thin mantle of organic soil is very erodible	-the high surface runoff could cause severe erosion should the thin soil layer be disturbed	-trees are prone to root compaction because of the thin soil layer and the lateral rooting of white spruce	-should the tree roots be weakened, wind blow damage could result because of high exposure
Development Capabilities	-	-	-	-	-
Development Rating: 1					
<u>Landscape Unit "C"</u>					
-bowl-shaped terrain with dense forest growth	-varies from flat bowl shaped areas to steep gradients bordering landscape unit "B"	-range from deep accumulation of humus and peat in the low areas to a thin organic layer (4 cm) on the steeper slopes	-varies from very fast runoff on the steep slopes to a near-stagnant flow in the bowls and rock pockets	-mesic mixed forest, very dense -associations consist of balsam fir, white spruce and mountain ash, white birch -the latter two occur on steeper and better drained slopes -the shrub layer consists of mountain maple, smooth alder and high bush cranberry -the ground layer is composed of moss, vascular and lichen flora	-very dense forest growth allows little light to reach the ground -very well-sheltered area
Development Implications	-generally too flat hence poorly drained -in general, however, no major constraints exist especially where the area borders unit "B"	-loose surficial conditions provide a very poor base for development	-the unit being a catchment area is fairly wet year-round -drainage problems i.e. flooding can be expected should development occur	-removal of the vegetation will increase the wetness of the unit during peak discharge periods	-Since the understory is accustomed to poor light, conditions can be damaged if the overstory is significantly removed
Development Capabilities	+	-	-	-	-
Development Rating: 2					
<u>Landscape Unit "D"</u>					
-sparsely vegetated -gentle beach ridges	-generally flat terrain with a crest and swale pattern of beach ridges	-composed of fine sands and till material with 2-5 cm accumulation of humus -the later being greater in the swales	-dissected by several streams, some of which are intermittent -surface drainage is generally good, except in swales where moisture accumulates due to thick humus layer and thick mat of ground cover (i.e. bearberry and blueberry)	-vegetation cover is very sparse -associations of white spruce and trembling aspen prevail -occurrence of red pine is due to reforestation -the area is almost devoid of a shrub layer (except along streams) -ground cover is very dense with associations of bearberry, blueberry and lichens	-the area is very exposed because of the sparse vegetation cover and the lack of understory -evidence of old blowouts (now regenerating) exists
Development Implications	-no topographic constraints exist except for the various streams cutting through the site and the minor variation of the hill and swale topography	-the remnants of the prisoner of war road indicate that development can be quite destructive to the site (extensive deflated hollows)	-surface drainage (with the exception of small streams) poses no problem to development -area is generally well-drained	-the vegetation cover (especially the ground cover) plays a dominant role in stabilizing the soils -such vegetation is quite susceptible to heavy use	-fairly exposed area is quite prone to blowouts if ground cover is removed
Development Capabilities	+	-	+	-	-
Development Rating: 3					

Landscape unit	Topography and slope	Geomorphology and soils	Drainage	Vegetation cover	Micro-climate
Landscape Unit "E" -forested beach ridges partially developed as campground	-gentle undulations of parallel beach ridges running NW-SE -dissected by several streams	-modified layer of sand ridges -stabilized by existing vegetation 10-15 cm of organic accumulation in swales	-surface drainage is generally good except in swales where runoff is trapped	-well developed vegetation cover in a maturing stage -the associations consist of balsam fir, white birch and white spruce -the shrub layer features mountain maple, smooth alder and red-berried elder -ground cover consists of Labrador tea and dwarf bunchberry	-area is well-shaded and sheltered by maturing vegetation
Development Implications	-the small ravines and the pronounced and dense occurrence of beach ridges present some problem to development	-the existing campground development shows very little "spin off" damage to the site -the low density and low use of the campground are in this case factors	-wet conditions in the swales and existing streams pose problems -sections susceptible to spring flooding	-the vegetation cover is very significant in stabilizing the site -precautions should be taken to preserve a major percentage of the existing cover	-no limiting factors -no evidence of wind blowdowns or blowouts
Development Capabilities	+	+	+	+	+
Development Rating: 6					
Landscape Unit "F" -forested beach ridges	-as in unit "E" -beach ridges are more pronounced than in unit "E" -slopes from swale to ridge top are significantly steeper	-as in unit "E"	-surface drainage is very poor in the swales -spring flooding is common -high watertable in swales	-as in unit "E"	-as in unit "E"
Development Implications	-slopes of the beach ridges are constraints to road building	-as in unit "E" -ridge tops are susceptible to erosion	-quite wet in swales during spring runoff	-as in unit "E" vegetation plays an important role in stabilizing the ridge configuration	-as in unit "E"
Development Capabilities	-	+	-	+	+
Development Rating: 4					
Landscape Unit "G" -ridge and swale landscape with active sand blowouts	-crest and swale pattern similar to unit "D"	-very sandy soils exposed on the blowout areas -3-5 cm of humus accumulation where ground cover exists -active blowout areas	-vegetation cover is very sparse -natural tree cover or shrub layer is negligible (except for the rectilinear red pine plantation) -ground cover is similar to unit "D" but being less dense it allows blowouts to occur -bearberry dominates the ground layer	-overland drainage is virtually nonexistent -very high infiltration rate resulting in very dry conditions -a couple of streams drain the area	-lack of natural canopy has allowed strong southwest winds to create deflated blowouts
Development Implications	-similar to unit "D" -regrading of regenerating hollows could create wind erosion problems	-very susceptible to development because of its unstable nature	-drainage is good for development -because retention capacity of the soil is very low, runoff will quickly reach nearby streams via infiltration	-the existing red pine plantation does very little to stabilize the soil -the lack of a shrub layer puts more emphasis on the ground cover as a stabilizing factor	-wind factor is already disturbing the site -any further development will cause extensive blowouts -the very dry conditions of the site make it very difficult for vegetation to regenerate
Development Capabilities	-	-	+	-	-
Development Rating: 2					
Landscape Unit "H" -extensive blowout area with active dune movement	-very flat and bowl-shaped -the original swale and crest topography is virtually nonexistent because of the P.O.W. camp -the southern portion of the unit has been developed into a trailer campground, and gravel has been used to stabilize the soil	-similar to unit "G" but very exposed and very unstable -dune formations are evident because of wind action -the deflated site seems to be moving northeast	-similar to unit "G" -the runoff is totally ground water oriented	-tree cover consists solely of the recently planted red pine around the edges of the unit -no shrub layer and little to no ground cover -the dynamic and arid qualities of the soil means natural regeneration is very unlikely	-because of the unprotected surface conditions, the wind plays a dominant role in shaping the area -the area is extremely dry -few plants will survive in such an arid landscape
Development Implications	-very difficult to manage because of the shifting nature of the sand	-totally unstable	-precautions with septic field because of the high permeability rate	-careful management will be required, if one intends to reforest the site in a way that will stabilize the soils -lack of existing vegetation poses a major drawback to development - site is very unstable	-wind action is the dominant control agent of the unit
Development Capabilities	-	-	+	-	-
Development Rating: 2					

Landscape unit	Topography and slope	Geomorphology and soils	Drainage	Vegetation cover	Micro-climate
<u>Landscape Unit "I"</u>	-crest and swale pattern of beach ridges -dissected by streams	-sandy soils -little humus -organic accumulation increase lakeward reading 10-15 cm	-generally good, with a few small pockets of poor drainage and raised water table to the east	-mesic deciduous forest -recent colonization -tree association consists of white birch, trembling aspen and white spruce -shrub layer consists mostly of mountain maple, some balsam fir grows as understorey in wetter areas -ground cover consists of aster, horsetail and chickweed	-the site is relatively well-sheltered, good stratification of tree cover, shrub layer and ground cover -some small open areas, but generally well-shaded and moist
Development Implications	-the only topographic constraint present in this unit is posed by the two streams	-constraints posed by soils are in the partially open areas where development could expose the sandy soils, and in wet areas where organic matter makes a poor base for development	-a few wet areas and stream courses to be avoided -perched and/or high water table conditions in places	-in the open areas, care should be taken to protect the existing vegetation on sandy soils -in wet areas the vegetation should be preserved	-in the open areas, wind erosion could result if development should take place there
Development Capabilities	+	-	-	+	-
Development Rating: 4					
<u>Landscape Unit "J"</u>	-varied, ranging from steep embankments to flat bottomland -flat and wet bottomland	-well-developed organic layer on bottomland (15 cm)	-poor; bottomland is fairly wet -stream flow has been impeded by beaver dams creating large ponds -the area is much wetter than unit "I"	-mixed forest with white birch, black spruce and balsam fir -similar shrub layer and ground cover as in unit "I" -moisture-loving species prevail	-very enclosed canopy -well sheltered
Development Implications	-the precipitous embankments of the stream pose a high constraint to development	-thick organic layer makes a very poor base for development	-generally very high water table -drainage poses great difficulties to development	-removal of the existing vegetation will only raise the water table and add to the already very wet nature of the unit	-no significant constraint -the dampness of the area provides a good breeding ground for insects
Development Capabilities	-	-	-	-	+
Development Rating: 2					
<u>Landscape Unit "K"</u>	-very gentle slope -slightly undulating	-silty sands with a thick layer of humus	-water table is generally high -part of the unit is in the floodplain of a stream -the A-horizon of the soil is well-drained	-coniferous dominant balsam fir, white spruce and white birch -shrub layer consists of balsam fir and mountain maple -ground cover is mainly composed of mosses, such as sphagnum species -in a maturing state	-very well sheltered area -thick vegetation cover, thus mostly shaded
Development Implications	-no constraints	-soils are generally stable	-drainage does not pose a problem except near the stream course, where flooding could occur	-well-developed forest stratification -no major impact from development is expected	-no major constraints are foreseen
Development Capabilities	+	+	+	+	+
Development Rating: 6					
<u>Landscape Unit "L"</u>	-gentle and undulating dune features -unaltered sand dune landscape	-sand with some organic accumulation in the swales (5 cm) and along stream courses -blowouts are present along the ridge crests of dunes -blowouts appear to be moving north to south	-very high infiltration rate except in hollows and along stream courses	-associations of white spruce, trembling aspen prevail -little to no shrub layer except along streams, where alder species occur -in the open areas, bearberry, blueberry lichens and mosses dominate the ground cover	-very open -wind factor very prominent -active dune system
Development Implications	-the crest and swale pattern presents some topographic restrictions to development	-the dune features are quite susceptible even to minor forms of development	-with the exception of streams, drainage is favourable for development -high infiltration rate could provide some problems to septic systems	-vegetation cover is very fragile and is responsible for maintaining the dunes in a fairly stable state	-any development of the site would increase wind erosion, which could significantly alter the whole ecology of the unit
Development Capabilities	-	-	-	-	-
Development Rating: 1					
<u>Landscape Unit "M"</u>	-mostly gently sloping towards the lake -small and wet catchment areas	-organic accumulations of 10-15 cm -beach ridges modified by creek action -no breakdown of parent material -bedrock outcropping around the periphery	-fairly poor -receives groundwater effluent and surface runoff from surrounding bedrock outcropping area	-associations of balsam fir and white spruce dominate the tree cover -on the shrub layer, mountain maple and red berried elder flourish -sphagnum mosses dominate the ground layer	-very well-sheltered areas -thick vegetation cover -moist and humid
Development Implications	-only topographic obstacles are the few steep areas within the unit	-the thick organic layer makes a poor base for development -bedrock outcrops and shallow overburden are also development restrictive features	-drainage is poor for development -ground water effluent presents problems	-removal of vegetation will increase runoff, hence altering the vegetation habitat	-micro-climate of the unit can be changed severely, if the understorey becomes exposed to sun and wind
Development Capabilities	+	-	-	-	-
Development Rating: 2					

Landscape unit	Topography and slope	Geomorphology and soils	Drainage	Vegetation cover	Micro-climate
Landscape Unit "N"	-deep entrenchments caused by streams -slopes adjacent to stream course are steep and precipitous; rest of unit is plateau-like	-stratifications of sands and clays	-evidence of perched water table -better drained upstream -high runoff factor -seepage occurs along the steep banks of the stream	-composed mainly of balsam fir, white birch and white spruce -shrub layer is dominated by balsam fir and mountain maple -on the ground layer, sphagnum moss and aromatic wintergreen are commonly found	-mostly quite enclosed except along the entrenchments
Development Implications	-entrenched terrain is the major restriction -steep slopes to the southeast	-no significant drawbacks with the exception of clay pockets, where septic fields would be incompatible	-poor drainage even on the upper reaches of the terrain -the high runoff factor also poses development problems	-mature stands of white birch to the southeast are prone to blowdown -removal of vegetation will add to the wetness of the landscape -removal of vegetation on the steep slopes could cause erosion problems and land sliding	-wind factor on the old vegetation stands could cause blowdown problems if vegetation in these areas is removed
Development Capabilities	-	+	-	-	-
Development Rating: 2					
Landscape Unit "O"	-generally flat to gently sloping	-sandy flats -extensive sand formations and disturbed dune feature	-very good -high infiltration rate	-trembling aspen and white spruce -little to no shrub layer -ground cover consists of bearberry and blueberry	-mostly very well-exposed -active wind-eroded features
Development Implications	-no topographic problems	-loose sandy material could become quite unstable, if development is not managed wisely	-high infiltration rate means that septic systems should be located as far as possible from stream courses	-the sparse vegetation distribution is the most significant landscape component, since it stabilizes a very loose sandy overburden	-wind erosion can be increased with development -presently very open and arid landscape
Development Capabilities	+	+	+	-	-
Development Rating: 4					
Landscape Unit "P"	-very rugged landscape covering approx. 2/3 of the park area -features very steep slopes, gradients range well above 20 percent -lineaments, fissures and rock talus formations are all very common	-wide expanses of bare fissured rock -some organic accumulation occurs in the fissures	-generally overland drainage dominates -varies greatly from very dry sites, where runoff is very quick to much wetter catchment sites, where runoff and groundwater seepage collects	-vegetation associations are dominated by coniferous species, such as white spruce and balsam fir -pockets of deciduous species consist of white birch, trembling aspen and mountain ash -in the shrub layer mountain maple and serviceberry are found; alder and viburnum species are on wetter sites -on the ground layer bearberry and blueberry dominate -on wetter areas lichen and vascular plants dominate	-varies greatly because of the sheer size of the unit -on dry sites the landscape is very open with the tree cover never forming a canopy -on wetter sites where the tree and shrub cover is mostly deciduous, very little light reaches the ground floor
Development Implications	-major constraints because of extreme ruggedness	-extensive rock outcropping areas and little to no overburden present major drawbacks to development	-quick overland drainage, seepage and perched water table are detrimental to development	-on such rugged landscape, the vegetation plays a most significant role in stabilizing slopes, retaining soils and harnessing moisture	-very high exposure factors on hillsides and hilltops -exposure because of the great relief -desiccation factor
Development Capabilities	-	-	-	-	-
Development Rating: 1					
Landscape Unit "Q"	-moderate to steep slope towards the lake	-thin soils with gravel lenses -area of deep peat formations	-very poor -swampy conditions prevail; standing water -intermittent streams -consistently poorly drained	-tree cover consists of black spruce, white birch and balsam fir -balsam fir also dominates the shrub layer -ground cover is provided by sphagnum species, up to 10 cm in thickness	-wet and humid conditions -in the path of the prevailing winds
Development Implications	-significant slope restrictions	-very poor base for development -loose and unstable -very erodible A-horizon	-water table is quite high -swamp and seepage conditions will make any development difficult -lowering the water table would be required	-since vegetation cover is a wetland association, it is quite susceptible to physical alterations	-no significant restrictions
Development Capabilities	-	-	-	-	+
Development Rating: 2					

Landscape unit	Topography and slope	Geomorphology and soils	Drainage	Vegetation cover	Micro-climate
<u>Landscape Unit "R"</u>	-extremely rugged and steep topography -gradients are all well over 20 percent -fissured bedrock	-weathering and mass wasting (sheathing, exfoliating and downward movement of rock) are active -little to no soil development -exposed bedrock covers approximately half of the unit.	-overland drainage is dominant -runoff is very rapid -numerous rill-like streams are created during periods of high precipitation	-tree cover varies from nothing in the west end of the unit to a clumped growth towards the east -the tree cover consists of white birch and white spruce -the shrub layer, where present, is made up of green alder, serviceberry and pin cherry -the compact juniper is the dominant shrub in the outcrop areas -lichens, butterworts and bullrushes colonize the ground layer	-southern exposure -a very arid unit -although a southerly exposure, temperatures are relatively low because of the high wind exposure and lake moderation
Development Implications	-extremely high constraints for development	-surface conditions, although mostly bedrock are highly unstable because of rock movement	-very fast and sudden -no infiltration except in rock fissures -runoff reaches lake very quickly	-very fragile -exposed root systems	-very exposed -wind factor is very strong
Development Capabilities	-	-	-	-	-
Development Rating: 1					
<u>Landscape Unit "S"</u>	-generally very flat to gently rolling terrain -valley area with ridge feature along the centre -up to 10 percent slope along the edges of the valley	-basically composed of silts and sands -sand ridges occur along the middle of the unit -humus layer varies from 2-15 cm in thickness	-central portion of valley not well-drained -quite wet and boggy during periods of high discharge -generally a high water table dominates the hydrological situation	-vegetation cover is quite diverse -undisturbed lichen heath communities exist -mosses are present in the wetter areas -tree cover consists of white spruce, trembling aspen and jack pine -in addition the more mature stands contain balsam fir and white birch -on the lichen heath communities there is no shrub layer -within the mature stands, shrub layer is dominated by mountain maple -alders dominate in the wetter areas	-with the exception of a few exposed sandy sites the wind plays a minor role in shaping the terrain
Development Implications	-no gradient constraints	-material very unstable, loose and unconsolidated	-high water table and poor drainage are major drawbacks	-presents a problem where the physiography is unstable; this characteristic is the most common throughout the unit	-no major constraints
Development Capabilities	+	-	-	-	+
Development Rating: 3					
<u>Landscape Unit "T"</u>	-flat to moderate slope conditions -the valley formation is bounded by steep cliffs	-largely sandy soils with little organic development -shallow rock platform at shoreline -the unit bordering the east coast has a thicker humus layer	-the valley is generally wet -the stream flow is fast -high water table in places -drier sites	-coniferous forest dominates -tree cover consists of balsam fir, white birch and white spruce -shrub layer consists of balsam fir on wet sites and mountain maple on drier sites -ground cover is dominated by mosses	-very enclosed and well sheltered -wind factor low except near shoreline where tree blowdown is evident
Development Implications	-no constraints on the valley floor -the edges of the valley can be quite steep	-no significant drawbacks	-wet areas and high water table zones are to be avoided	-removal of vegetation would raise the water table during peak discharge periods and encourage wind damage if close to shoreline	-only constraints are to be found near the shore
Development Capabilities	+	+	-	-	-
Development Rating: 3					
<u>Landscape Unit "U"</u>	-the floodplain is generally small -the valley is "V" shaped with very steep sides	-soils are varied with organic material, sands silts and outcrops intermixed	-water flow in creek is generally low -the valley bottom is mostly wet -ground water seepage occurs along the valley walls	-tree cover consists of balsam fir, white birch and white spruce -trembling aspen and mountain ash occur on the side of the valley -shrub layer is dominated by mountain maple and smooth alder -mosses dominate the ground cover -sphagnum species dominate the floodplain area	-well-sheltered but westerly winds can channel down the narrow valley at high speeds -very damp valley -receives little sunlight because of the physical enclosure of the valley and thick vegetation growth
Development Implications	-steep embankments bordering the stream bed and floodplain make for very unstable slope conditions	-silts and sands are very unstable and unconsolidated -the vegetation cover, however, keeps most of these soils from severe erosion	-the valley floor is poorly-drained -seepage conditions also make the walls of the valley significantly wet	-the vegetation stabilizes the very steep slopes and loose soil conditions and delays excessive runoff	-high winds and dampness can be significant drawback factors
Development Capabilities	-	-	-	-	-
Development Rating: 1					

Landscape unit	Topography and slope	Geomorphology and soils	Drainage	Vegetation cover	Micro-climate
<u>Landscape Unit "V"</u>	-razorback relief -bordered by cliffs and pronounced fissure features	-mostly bare bedrock -some pockets with a thin organic layer	-overland drainage dominates -the unit extremely dry -no infiltration except along fissured areas	-tree cover consists of white birch and white spruce -no shrub layer -ground cover is dominated by blueberry and some occurrences of lichens	-wind factor is dominant -very high exposure -very dry site -tree forms have been wind-trained
Development Implications	-major restrictions because of slope	-no significant soil profile to support development -compaction factor would be high	-runoff is too fast: development will only increase it	-very susceptible to trampling because of exposed roots and thin soils	-exposure to high winds causing a desiccation factor makes vegetation more susceptible to development
Development Capabilities	-	-	-	-	-
Development Rating: 1					
<u>Landscape Unit "W"</u>	-extremely steep except on the summit area of the C.B.C. microwave tower	-heavily-disturbed area -bedrock exposure dominates	-drainage is overland and very fast -rill erosion and washouts are common	-on the disturbed summits, secondary succession has taken hold with raspberries and alders dominating -smooth alder grows in thickets along the edge of the cleared area	-summits and roadway are very exposed to wind
Development Implications	-topographic gradients are most unsuitable for development	-like unit "V", no soil profile to speak of; poor for development	-very high runoff rates are presently causing erosion problems	-regenerating species are not to be disturbed	-wind exposure constraints similar to unit "V"
Development Capabilities	-	-	-	-	-
Development Rating: 1					





Ministry of
Natural
Resources

Hon. Frank S. Miller
Minister

Dr. J.K. Reynolds
Deputy Minister

October, 1977

